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# Water Resources Data for Arizona

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U.S. GEOLOGICAL SURVEY WATER-DATA REPORT AZ-78-1

## WATER YEAR 1978

Prepared in cooperation with the State of Arizona and with other agencies

# CALENDAR FOR WATER YEAR 1978

## 1977

### OCTOBER

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## 1978

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# Water Resources Data for Arizona

U.S. GEOLOGICAL SURVEY WATER-DATA REPORT AZ-78-1

## WATER YEAR 1978

Prepared in cooperation with the State of Arizona and with other agencies

UNITED STATES DEPARTMENT OF THE INTERIOR

CECIL D. ANDRUS, Secretary

GEOLOGICAL SURVEY

H. W. Menard, Director

For information on the water program in Arizona write to
District Chief, Water Resources Division
U.S. Geological Survey
301 W. Congress Street
Tucson, Arizona 85701

1979

## PREFACE

This report was prepared by personnel of the Arizona district of the Water Resources Division of the U.S. Geological Survey, under the supervision of R. D. Mac Nish, District Chief, and W. H. Robinson, Regional Hydrologist, Western Region. It was done in cooperation with the State of Arizona and with other agencies.

This report is one of a series by State. General direction for the series is by J. S. Cragwall, Jr., Chief Hydrologist, and G. W. Whetstone, Assistant Chief Hydrologist for Scientific Publications and Data Management.

## NOTICE

During water year 1978, revisions were made in the terminology used to define 143 of the water-quality parameter codes that have been used by the U.S. Geological Survey in its publication of water-quality data and in its WATSTORE data system. These revisions were made to achieve consistency in terminology and to conform to a joint U.S. Geological Survey-Environmental Protection Agency agreement on terminology. They do not represent a change in the way the codes have been used in the past or in the association of specific code numbers with identified analytical procedures.

Use of the new terminology began with data for the 1978 water year, and therefore, it first appears in this publication. Definitions on which the terminology is based are included in the "Definitions" section of this report, and a table showing both old and new terminology is attached as an appendix to the report.

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Water resources data for the 1978 water year for Arizona consist of records of stage, discharge, and water quality of streams; stage, contents, and water quality of lakes and reservoirs; water levels of observation wells; and quality of ground water. This report contains discharge records for 241 gaging stations, annual peaks for 77 crest-stage partial-record stations, and discharge measurements at 58 miscellaneous sites; contents only records for 9 lakes and reservoirs; stage and contents for 1 lake; elevations only for 2 lakes or reservoirs; gage height only for 1 lake and 1 head over a dam; 16 supplementary records, included with gaging-station records, consisting of monthend or monthly stage, contents, and evaporation of lakes and reservoirs, diversions, and return flows; 2 low-flow investigations; water-quality records for 87 continuous-record stations and 16 miscellaneous sites; water levels for 101 observation wells; and water-quality data for water from 189 wells. The data represent that part of the National Water Data System operated by the U.S. Geological Survey and cooperating Federal and State Agencies in Arizona.

**17. Document Analysis a. Descriptors**

*Arizona, *Hydrologic data, *Surface water, *Ground water, *Water quality, Flow rate, Gaging stations, Lakes, Reservoirs, Chemical analyses, Sediments, Water temperatures, Sampling sites, Water levels, Water analyses.

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GAGING STATIONS AND WATER-QUALITY STATIONS, IN DOWNSTREAM ORDER, FOR WHICH RECORDS ARE PUBLISHED

[Letters after station name designate type of data: (b) biological; (c) chemical; (d) discharge; (e) elevation; (g) gage height; (m) microbiological (bacteria); (p) pesticide; (q) specific conductance (daily); (r) radiochemical; (s) suspended sediment; (t) water temperature (daily); (v) contents]

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# INTRODUCTION

Water resources data for the 1978 water year for Arizona consist of records of stage, discharge, and water quality of streams; stage, contents, and water quality of lakes and reservoirs; measurements of ground-water levels; and quality of water from selected wells. Also included are discharge data for crest-stage partial-record stations and water-quality data for partial-record stations. Locations of the gaging stations are shown in figures 4, 6, and 7, and of water-quality stations in figures 5 and 6. Additional water data were collected at various sites, which are not part of the systematic data-collection program, and are published as miscellaneous measurements or miscellaneous water-quality analyses. These data represent that part of the National Water Data System operated by the U.S. Geological Survey and cooperating State and Federal agencies in Arizona.

Records of discharge or stage of streams and contents or stage of lakes and reservoirs were first published in a series of U.S. Geological Survey water-supply papers entitled "Surface Water Supply of the United States." These water-supply papers were in an annual series through water year 1960 and then in a 5-year series for 1961-65 and 1966-70. Records of chemical quality, water temperatures, and suspended sediment were published from 1941 to 1970 in an annual series of water-supply papers entitled "Quality of Surface Waters of the United States." Records of ground-water levels were published from 1935 to 1974 in a series of water-supply papers entitled "Ground-Water Levels in the United States." Water-supply papers may be consulted in the libraries of the principal cities in the United States or may be purchased from the Branch of Distribution, U.S. Geological Survey, 1200 South Eads Street, Arlington, Virginia 22202.

For water years 1961-74, streamflow data were released by the Geological Survey in annual reports on a State-boundary basis. For water years 1964-74, water-quality records were similarly released either in separate reports or in conjunction with streamflow records.

Beginning with the 1975 water year, water data for streamflow, water quality, and ground water are published in official Survey reports on a State-boundary basis. These official Survey reports carry an identification number consisting of the two-letter State abbreviation, the last two digits of the water year, and the volume number. For example, this report is identified as "U.S. Geological Survey Water-Data Report AZ-78-1." Water-data reports are for sale by the National Technical Information Service, U.S. Department of Commerce, Springfield, Virginia 22161.

Additional information, including current prices, for ordering specific reports may be obtained from the district chief at the address given on the back of the title page or by telephone (602) 792-6671.

## COOPERATION

The U.S. Geological Survey and organizations of the State of Arizona have had cooperative agreements for the systematic collection of surface-water records since 1912, for ground-water levels since 1939, and for water-quality records since 1969. Organizations that assisted in collecting data through cooperative agreement with the Survey are:

Arizona Department of Health Services, W. H. Shafer, assistant chief, Technical Services and Support.
Arizona Water Commission, W. E. Steiner, executive director.
Arizona Game and Fish Department, R. A. Jantzen, director.
Arizona State Land Department, A. L. Bettwy, State land commissioner.
Salt River Valley Water Users' Association, K. F. Abel, president, and D. S. Wilson, Jr., manager, Water Resources Operations.
Flood Control District of Maricopa County, H. P. Donald, chief engineer and general manager.
Gila Valley Irrigation District, S. L. Pace, president.
San Carlos Irrigation and Drainage District, C. L. Skousen, president, and N. M. Soma, district manager.
Show Low Irrigation Company, Chester Adams, secretary-treasurer.
Pima County Board of Supervisors, E. S. Walker, chairman.
Maricopa County Municipal Water Conservation District No. 1, S. L. Libby, president, and J. A. Falbo, secretary-manager.
City of Flagstaff, R. L. Moody, mayor, and C. K. McClain, city manager.
City of Safford, R. D. Self, city manager.
City of Tucson, Lewis Murphy, mayor, and F. R. Emmett, acting city engineer.
Metropolitan Water District of Southern California, J. H. Lauten, general manager, and C. E. Hildebrand, principal engineer.
University of Arizona, Sol Resnick, director, Water Resources Research Center.

Assistance in the form of funds or services was given by the Corps of Engineers, U.S. Army, in collecting records for 14 gaging stations published in this report; by the Bureau of Reclamation, U.S. Department

of the Interior, for 8 stations; and by the Federal Power Commission for 2 stations. Assistance in collecting records was furnished by the Arizona Public Service Co. Organizations that supplied data are acknowledged in station descriptions.

## HYDROLOGIC CONDITIONS

As is common in Arizona, streamflow varied greatly in the 1978 water year—from month to month throughout the year and from place to place in the State. The variations are related to differences in precipitation, temperature, topography, and geology. The yearly mean discharge at six key gaging stations ranged from 108 to 321 percent of the median of yearly mean discharges. The median of the yearly mean discharges is defined as the middle value of discharge when arranged in order of size. For the index stations, the median is computed from the yearly mean discharges for the 1941-70 period of record.

The yearly mean discharge for the 1978 water year was excessive at four of the index stations and near the excessive value at the other two index stations. The flow of the San Pedro River at Charleston was excessive from October through May; the flow at all six index stations was greatly excessive in March. Deficient flows at the index stations occurred randomly but mostly during the last 3 months of the water year.

The yearly mean discharge for the 1978 water year and the relation to the median of yearly mean discharges for the period 1941-70 for the six index gaging stations are given below.

| Station | Discharge (acre-feet) | Percent of median |
|---|---|---|
| Little Colorado River near Cameron.... | 178,800 | 108 |
| Virgin River at Littlefield..... | 256,600 | †200 |
| Gila River at head of Safford Valley, near Solomon..... | 331,000 | 187 |
| San Pedro River at Charleston..... | 86,090 | †288 |
| Salt River near Roosevelt..... | 1,103,000 | †303 |
| Verde River below Tangle Creek, above Horseshoe Dam..... | 926,300 | †321 |

† Excessive

The discharge of the Colorado River near Grand Canyon was 8,457,000 acre-ft (10,400 $hm^3$); the flow of the Colorado River at this point is affected by storage in upstream reservoirs, and this gaging station is no longer used as an index station.

The discharge of the Santa Cruz River at Tucson was 56,790 acre-ft (70.0 $hm^3$) for the 1978 water year, which is about 562 percent of the median flow for the period of record, 1906-78. The Santa Cruz River is an intermittent stream that is subject to large variations in flow—from place to place along the river and from time to time. For example, the flow for 1965 was only 9 percent of median and for 1972 only 52 percent of median.

Two periods of major flooding occurred during the 1978 water year. During October 6 to 9, 1977, as much as 14 in (356 mm) of rain fell in southern Arizona and northern Mexico. During February 28 to March 4, 1978, 4 to 6 in (102 to 152 mm), and in places as much as 9 to 14 in (229 to 356 mm), of rain fell in the mountains of central Arizona; the rainfall was preceded by extremely large amounts of precipitation in January and February.

The October floods are the largest known on the Santa Cruz River upstream from Tucson and the sixth largest known since 1913 on the San Pedro River. The peak discharge of 23,700 $ft^3/s$ (671 $m^3/s$) on the Santa Cruz River at Tucson is the highest since at least 1892. The flood along the Santa Cruz River and tributary drainages inundated areas as much as 4 mi (6.48 m) wide, covered at least 16,000 acres (6,500 $hm^2$) of farmland, and caused $15 million in damages.

The March floods occurred mostly on the Salt, Gila, and Verde Rivers. Unusually large volumes of runoff occurred upstream from reservoirs on the Salt and Verde Rivers. The peak discharge into Roosevelt Lake was more than 155,000 $ft^3/s$ (4,390 $m^3/s$), the largest since at least 1890. The reservoirs stored large quantities of water and greatly reduced the magnitude of the flood. The peak discharge of the Salt River at Phoenix—the highest since 1920—was 122,000 $ft^3/s$ (3,455 $m^3/s$), and the discharge was more than 100,000 $ft^3/s$ (2,832 $m^3/s$) for 7 hours. Without the storage provided by the reservoirs, the peak discharge would have been about 260,000 $ft^3/s$ (7,363 $m^3/s$), and the discharge would have been more than 100,000 $ft^3/s$ (2,832 $m^3/s$) for 3 days. Three deaths resulted from the flood, and statewide damages amounted to $66 million.

Storage increased in the major reservoirs during the 1978 water year. Change in contents during the year and percentage of average contents on September 30 for the period of record for several reservoirs are given below.

| Reservoir | Change in contents, 1977-78 (acre-feet) | Average contents on September 30 (percent) |
|---|---|---|
| Lake Powell..... | +419,000 | --- |
| Lakes Mead-Mohave..... | +683,000 | 114 |
| San Carlos Reservoir..... | +63,700 | 64 |
| Salt-Verde system..... | +971,860 | 208 |
| Lake Pleasant..... | +107,080 | 334 |

Diversions of streamflow for irrigation of Arizona lands in the 1978 water year was 2,910,000 acre-ft (3,588 $hm^3$), slightly more than in 1977. About 1,676,000 acre-ft (2,067 $hm^3$) was diverted from the Colorado River for use by the Colorado River Indian Reservation, the Gila Project, and the Yuma Project. About 797,000 acre-ft (983 $hm^3$) of the water diverted from the Colorado River was returned to the river or discharged across the Arizona-Sonora international boundary. About 1,236,000 acre-ft (1,524 $hm^3$) of streamflow was diverted from the Gila River basin for use in Safford Valley, the San Carlos Project, and the Salt River Project.

Figure 1 shows the discharge for the 1978 water year compared with the median runoff for the period 1941-70 at three representative gaging stations for which long-term records are available.

## DEFINITION OF TERMS

Terms related to streamflow, water quality, and other hydrologic data, as used in this report, are defined below. See also the table "Factors for conversion of inch-pound units to International System (SI) Units" on the inside of the back cover.

Acre-foot (AC-FT, acre-ft) is the quantity of water required to cover 1 acre to a depth of 1 foot and is equivalent to 43,560 cubic feet or about 326,000 gallons, or 1,233 cubic meters.

Algae are mostly aquatic single-celled, colonial, or multicelled plants, containing chlorophyll and lacking roots, stems, and leaves.

Aquifer is a geologic formation, group of formations, or part of a formation that contains sufficient saturated permeable material to yield significant quantities of water to wells and springs.

Bacteria are microscopic unicellular organisms, typically spherical, rodlike, or spiral and threadlike in shape, often clumped into colonies. Some bacteria cause disease, others perform an essential role in nature in the recycling of materials; for example, by decomposing organic matter into a form available for reuse by plants.

> Total coliform bacteria are a particular group of bacteria that are used as indicators of possible sewage pollution. They are characterized as aerobic or facultative anaerobic, gram-negative, nonspore-forming, rod-shaped bacteria, which ferment lactose with gas formation within 48 hours at 35°C. In the laboratory these bacteria are defined as the organisms that produce colonies within 24 hours when incubated at 35°C ± 1.0°C on M-Endo medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

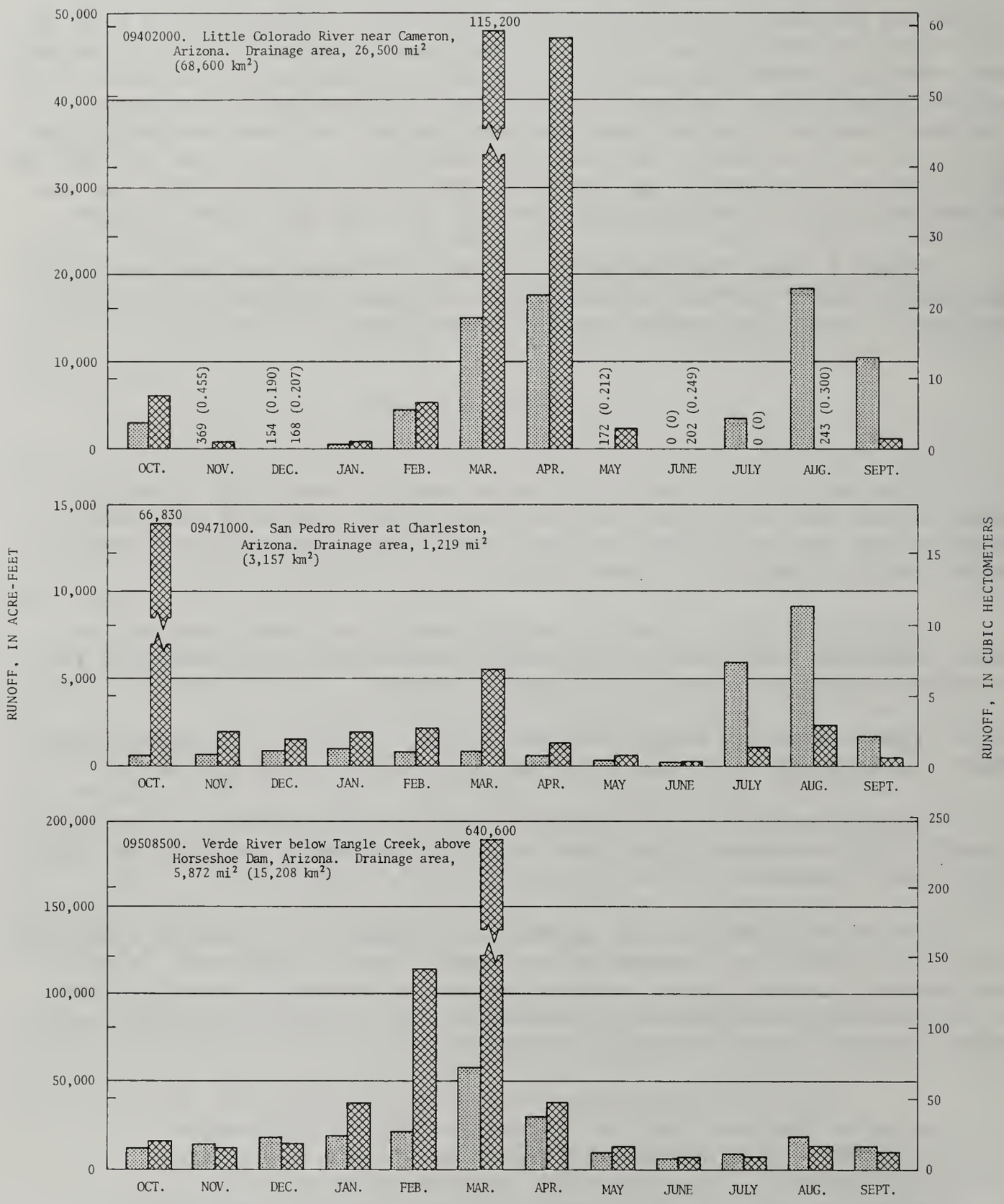



FIGURE 1.--RUNOFF DURING 1978 WATER YEAR COMPARED WITH MEDIAN RUNOFF FOR PERIOD 1941-70 FOR THREE REPRESENTATIVE GAGING STATIONS.

Fecal coliform bacteria are bacteria that are present in the intestines or feces of warmblooded animals. They are often used as indicators of the sanitary quality of the water. In the laboratory they are defined as all organisms that produce blue colonies within 24 hours when incubated at 44.5°C ± 0.2°C on M-FC medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Fecal streptococcal bacteria are bacteria found also in the intestines of warmblooded animals. Their presence in water is considered to verify fecal pollution. They are characterized as gram-positive, cocci bacteria which are capable of growth in brain-heart infusion broth. In the laboratory they are defined as all the organisms which produce red or pink colonies within 48 hours at 35°C ± 1.0°C on M-enterococcus medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Bed material is the unconsolidated material of which a streambed, lake, pond, reservoir, or estuary bottom is composed.

Biomass is the amount of living matter present at any given time, expressed as the mass per unit area or volume of habitat.

Ash mass is the mass or amount of residue present after the residue from the dry mass determination has been ashed in a muffle furnace at a temperature of 500°C for 1 hour. The ash mass values of zooplankton and phytoplankton are expressed in grams per cubic meter ($g/m^3$), and periphyton and benthic organisms in grams per square meter ($g/m^2$).

Dry mass refers to the mass of residue present after drying in an oven at 60°C for zooplankton and 105°C for periphyton, until the mass remains unchanged. This mass represents the total organic matter, ash and sediment, in the sample. Dry mass values are expressed in the same units as ash mass.

Organic mass or volatile mass of the living substance is the difference between the dry mass and the ash mass, and represents the actual mass of the living matter. The organic mass is expressed in the same units as for the ash mass and dry mass.

Wet mass is the mass of living matter plus contained water.

Bottom material: See Bed material.

Cells/volume refers to the number of cells of any organism that are counted by using a microscope and grid or counting cell. Many planktonic organisms are multicelled and are counted according to the number of contained cells per sample, usually milliliters (mL) or liters (L).

Cfs-day is the volume of water represented by a flow of 1 cubic foot per second for 24 hours. It is equivalent to 86,400 cubic feet, approximately 1.9835 acre-feet, about 646,000 gallons, or 2,447 cubic meters.

Chemical oxygen demand (COD) is a measure of the chemically oxidizable material in the water, and furnishes an approximation of the amount of organic and reducing material present. The determined value may correlate with natural water color or with carbonaceous organic pollution from sewage or industrial wastes.

Chlorophyll refers to the green pigments of plants. Chlorophyll a and b are the two most common pigments in plants.

Contents is the volume of water in a reservoir or lake. Unless otherwise indicated, volume is computed on the basis of a level pool and does not include bank storage.

Control designates a feature downstream from the gage that determines the stage-discharge relation at the gage. This feature may be a natural constriction of the channel, an artificial structure, or a uniform cross section over a long reach of the channel.

Cubic feet per second per square mile (CFSM) is the average number of cubic feet of water flowing per second from each square mile of area drained, assuming that the runoff is distributed uniformly in time and area.

Cubic foot per second ($ft^3/s$) is the rate of discharge representing a volume of 1 cubic foot passing a given point during 1 second, and is equivalent to approximately 7.48 gallons per second or 448.8 gallons per minute or 0.02832 cubic meters per second.

Discharge is the volume of water (or more broadly, volume of fluid plus suspended sediment) that passes a given point within a given period of time.

Mean discharge (mean) is the arithmetic mean of individual daily mean discharges during a specific period.

Instantaneous discharge is the discharge at a particular instant of time.

Dissolved refers to that material in a representative water sample which passes through a 0.45 micrometer membrane filter. This is a convenient operational definition used by Federal agencies that collect water data. Determinations of "dissolved" constituents are made on subsamples of the filtrate.

Diversity index is a numerical expression of evenness of distribution of aquatic organisms. The formula for diversity index is:

$$\bar{d} = -\sum_{i=1}^{s} \frac{n_i}{n} \log_2 \frac{n_i}{n}$$

where $n_i$ is the number of individuals per taxon, $n$ is the total number of individuals, and $s$ is the total number of taxa in the sample of the community. Diversity index values range from zero, when all the organisms in the sample are the same, to some positive number, when some or all of the organisms in the sample are different.

Drainage area of a stream at a specific location is that area, measured in a horizontal plane, enclosed by a topographic divide from which direct surface runoff from precipitation normally drains by gravity into the stream above the specified point. Figures of drainage area are given herein include all closed basins, or noncontributing areas within the area unless otherwise noted.

Gage height (G. H.) is the water-surface elevation referred to some arbitrary gage datum. Gage height is often used interchangeably with the more general term "stage," although gage height is more appropriate when used with a reading on a gage.

Gaging station is a particular site on a stream, canal, lake, or reservoir where systematic observations of hydrologic data are obtained.

Hardness of water is a physical-chemical characteristic that is commonly recognized by the increased quantity of soap required to produce lather. It is attributable to the presence of alkaline earths (principally calcium and magnesium) and is expressed as equivalent calcium carbonate ($CaCO_3$).

Hydrologic unit is a geographic area representing part or all of a surface drainage basin or distinct hydrologic feature as delineated by the Office of Water Data Coordination on the State Hydrologic Unit Maps; each hydrologic unit is identified by an 8-digit number.

Micrograms per gram (µg/g) is a unit expressing the concentration of a chemical element as the mass (micrograms) of the element sorbed per unit mass (gram) of sediment.

Micrograms per liter (UG/L, µg/L) is a unit expressing the concentration of chemical constituents in solution as mass (micrograms) of solute per unit volume (liter) of water. One thousand micrograms per liter is equivalent to one milligram per liter.

Milligrams per liter (MG/L, mg/L) is a unit for expressing the concentration of chemical constituents in solution. Milligrams per liter

represent the mass of solute per unit volume (liter) of water. Concentration of suspended sediment also is expressed in mg/L, and is based on the mass of sediment per liter of water-sediment mixture.

Miscellaneous site is a location other than continuous- or partial-record stations where random discharge measurements are made or samples are collected to give better areal coverage of unusual flow events or water-quality conditions in a river basin.

National Geodetic Vertical Datum of 1929 (NGVD) is a geodetic datum derived from a general adjustment of the first order level nets of both the United States and Canada. It was formerly called "Sea Level Datum of 1929" or "mean sea level" in this series of reports. Although the datum was derived from the average sea level over a period of many years at 26 tide stations along the Atlantic, Gulf of Mexico, and Pacific Coasts, it does not necessarily represent local mean sea level at any particular place.

Organism is any living entity, such as an insect, phytoplankter, or zooplankter.

Organism count/volume refers to the number of organisms collected and enumerated in a sample and adjusted to the number per sample volume, usually milliliters (mL) or liters (L). Numbers of planktonic organisms can be expressed in these terms.

Total organism count is the total number of organisms collected and enumerated in any particular sample.

Partial-record station is a particular site where limited streamflow and/or water-quality data are collected systematically over a period of years for use in hydrologic analyses.

Particle size is the diameter, in millimeters (mm), of suspended sediment or bed material determined either by sieve or sedimentation methods. Sedimentation methods (pipet, bottom-withdrawal tube, visual-accumulation tube) determine fall diameter of particles in either distilled water (chemically dispersed) or in native water (the river water at the time and point of sampling).

Particle-size classification used in this report, agrees with recommendations made by the American Geophysical Union Subcommittee on Sediment Terminology.

The classification is as follows:

| Classification | Size (mm) | Method of analysis |
|---|---|---|
| Clay ..... | 0.00024 - 0.004 | Sedimentation |
| Silt ..... | .004 - .062 | Sedimentation |
| Sand ..... | .062 - 2.0 | Sedimentation or sieve |
| Gravel ..... | 2.0 - 64.0 | Sieve |

The particle-size distributions given in this report are not necessarily representative of all particles in transport in the stream. Most of the organic material is removed and the sample is subjected to mechanical and chemical dispersion before analysis in distilled water. Chemical dispersion is not used for native-water analysis.

Percent composition is a unit for expressing the ratio of a particular part of a sample or population to the total sample or population, in terms of types, numbers, mass, or volume.

Periphyton is the assemblage of microorganisms attached to and growing upon solid surfaces. While primarily consisting of algae, they also include bacteria, fungi, protozoa, rotifers, and other small organisms. Periphyton is a useful indicator of water quality.

Pesticides are chemical compounds used to control undesirable plants and animals. Major categories of pesticides include insecticides, miticides, fungicides, herbicides, and rodenticides. Insecticides and herbicides, which control insects and plants, respectively, are the two categories reported.

Picocurie (PC, pCi) is one trillionth ($1 \times 10^{-12}$) of the amount of radioactivity represented by a curie (Ci). A curie is the amount of radioactivity that yields $3.7 \times 10^{10}$ radioactive disintegrations per second. A picocurie yields 2.22 dpm (disintegrations per minute).

Plankton is the community of suspended, floating, or weakly swimming organisms that live in the open water of lakes and rivers.

Phytoplankton is the plant part of the plankton. They are usually microscopic and their movement is subject to the water currents. Phytoplankton growth is dependent upon solar radiation and nutrient substances. Because they are able to incorporate as well as release materials to the surrounding water, the phytoplankton have a profound effect upon the quality of the water. They are the primary food producers in the aquatic environment, and are commonly known as algae.

Blue-green algae are a group of phytoplankton organisms having a blue pigment, in addition to the green pigment called chlorophyll. Blue-green algae often cause nuisance conditions in water.

Diatoms are the unicellular or colonial algae having a siliceous shell. Their concentrations are expressed as number of cells/mL of sample.

Green algae have chlorophyll pigments similar in color to those of higher green plants. Some forms produce algal mats or floating "moss" in lakes. Their concentrations are expressed as number of cells/mL of sample.

Zooplankton is the animal part of the plankton. Zooplankton are capable of extensive movements within the water column, and are often large enough to be seen with the unaided eye. Zooplankton are secondary consumers feeding upon bacteria, phytoplankton, and detritus. Because they are the grazers in the aquatic environment, the zooplankton are a vital part of the aquatic food web. The zooplankton community is dominated by small crustaceans and rotifiers.

Polychlorinated biphenyls (PCBs) are industrial chemicals that are mixtures of chlorinated biphenyl compounds having various percentages of chlorine. They are similar in structure to organochlorine insecticides.

Recoverable from bottom material is the amount of a given constituent that is in solution after a representative sample of bottom material has been digested by a method (usually using an acid or mixture of acids) that results in dissolution of only readily soluble substances. Complete dissolution of all bottom material is not achieved by the digestion treatment and thus the determination represents less than the total amount (that is, less than 95 percent) of the constituent in the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Runoff in inches (IN, in) shows the depth to which the drainage area would be covered if all the runoff for a given time period were uniformly distributed on it.

Sediment is solid material that originates mostly from disintegrated rocks and is transported by, suspended in, or deposited from water; it includes chemical and biochemical precipitates and decomposed organic material, such as humus. The quantity, characteristics, and cause of the occurrence of sediment in streams are influenced by environmental factors. Some major factors are degree of slope, length of slope, soil characteristics, land usage, and quantity and intensity of precipitation.

Suspended sediment is the sediment that at any given time is maintained in suspension by the upward components of turbulent currents or that exists in suspension as a colloid.

Suspended-sediment concentration is the velocity-weighted concentration of suspended sediment in the sampled zone (from the water surface to a point approximately 0.3 ft above the bed) expressed as milligrams of dry sediment per liter of water-sediment mixture (mg/L).

Suspended-sediment discharge (tons/day) is the rate at which dry weight of sediment passes a section of a stream or is the quantity of sediment, as measured by dry weight, or by volume, that passes a section in a given time. It is computed by multiplying discharge times mg/L times 0.0027.

Suspended-sediment load is quantity of suspended sediment passing a section in a specified period.

Total sediment discharge (tons/day) is the sum of the suspended-sediment discharge and the bed-load discharge. It is the total quantity of sediment, as measured by dry weight or volume, that passes a section during a given time.

Mean concentration is the time-weighted concentration of suspended sediment passing a stream section during a 24-hour day.

Seston is the total suspended particulate matter in water. The concentration of particulate matter has a profound effect upon the optical properties of the water, and upon the concentration of dissolved materials in the water. Their concentrations are expressed as number of colonies per 100 mL of sample.

Sodium-adsorption ratio (SAR) is the expression of relative activity of sodium ions in exchange reactions with soil and is an index of sodium or alkali hazard to the soil. Waters range in respect to sodium hazard from those which can be used for irrigation on almost all soils to those which are generally unsatisfactory for irrigation.

Solute is any substance derived from the atmosphere, vegetation, soil, or rocks that is dissolved in water.

Specific conductance is a measure of the ability of a water to conduct an electrical current. It is expressed in micromhos per centimeter at 25°C. Specific conductance is related to the type and concentration of ions in solution and can be used for approximating the dissolved-solids content of the water. Commonly, the concentration of dissolved solids (in milligrams per liter) is about 65 percent of the specific conductance (in micromhos). This relation is not constant from stream to stream, and it may even vary in the same source with changes in the composition of the water.

Stage-discharge relation is the relation between gage height (stage) and volume of water per unit of time, flowing in a channel.

Streamflow is the discharge that occurs in a natural channel. Although the term "discharge" can be applied to the flow of a canal, the word "streamflow" uniquely describes the discharge in a surface stream course. The term "streamflow" is more general than "runoff" as streamflow may be applied to discharge whether or not it is affected by diversion or regulation.

Substrate is the physical surface upon which an organism lives.

Natural substrates refers to any naturally occurring emersed or submersed solid surface, such as a rock or tree, upon which an organism lived.

Artificial substrate is a device which is purposely placed in a stream or lake for colonization of organisms. The artificial substrate simplifies the community structure by standardizing the substrate from which each sample is taken. Examples of artificial substrates are basket samplers (made of wire cages filled with clean streamside rocks) and multiplate samplers (made of hardboard) for benthic organism collection, and plexiglass strips for periphyton collection.

Suspended, recoverable is the amount of a given constituent that is in solution after the part of a representative water-suspended sediment sample that is retained on a 0.45-micrometer membrane filter has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all the particulate matter is not achieved by the digestion treatment and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results. Determinations of "suspended, recoverable" constituents are made either by analyzing portions of the material collected on the filter or, more commonly, by difference, based on determinations of (1) dissolved and (2) total recoverable concentrations of the constituent.

Suspended, total is the total amount of a given constituent in the part of a representative water-suspended sediment sample that is retained on a 0.45-micrometer membrane filter. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent determined. A knowledge of the expected form of the constituent

in the sample, as well as the analytical methodology used, is required to determine when the results should be reported as "suspended, total." Determinations of "suspended, total" constituents are made either by analyzing portions of the material collected on the filter or, more commonly, by difference, based on determinations of (1) dissolved and (2) total concentrations of the constituent.

Taxonomy is the division of biology concerned with the classification and naming of organisms. The classification of organisms is based upon a hierarchical scheme beginning with Kingdom and ending with Species at the base. The higher the classification level, the fewer features the organisms have in common. For example, the taxonomy of a particular mayfly, *Hexagenia limbata* is the following:

Kingdom ..... Animal
Phylum ..... Arthropoda
Class ..... Insecta
Order ..... Ephemeroptera
Family ..... Ephemeridae
Genus ..... *Hexageria*
Species ... *Hexagenia limbata*

Thermograph is a thermometer that continuously and automatically records, on a chart, the water temperature of a stream. "Temperature recorder" is the term used to indicate the location of the thermograph or a digital mechanism that automatically records water temperature on paper tape.

Tons per acre-foot indicates the dry mass of dissolved solids in 1 acre-foot of water. It is computed by multiplying the concentration in milligrams per liter by 0.00136.

Tons per day is the quantity of a substance in solution or suspension that passes a stream section during a 24-hour day.

Total is the total amount of a given constituent in a representative water-suspended sediment sample, regardless of the constituent's physical or chemical form. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent present in both the dissolved and suspended phases of the sample. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to judge when the results should be reported as "total." (Note that the word "total" does double duty here, indicating both that the sample consists of a water-suspended sediment mixture and that the analytical method determines all of the constituent in the sample.)

Total in bottom material is the total amount of a given constituent in a representative sample of bottom material. This term is used only when the analytical procedure assures measurement of at least 95 percent of the

constituent determined. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to judge when the results should be reported as "total in bottom material."

Total, recoverable is the amount of a given constituent that is in solution after a representative water-suspended sediment sample has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all particulate matter is not achieved by the digestion treatment, and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the dissolved and suspended phases of the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

WRD is used as an abbreviation for "Water Resources Data" in the REVISED RECORDS paragraph to refer to State annual basic-data reports published before 1975.

WSP is used as an abbreviation for "Water-Supply Paper" in references to previously published reports.

## DOWNSTREAM ORDER AND STATION NUMBERS

Since October 1, 1950, the order of listing hydrologic-station records in Survey reports is in a downstream direction along the main stream. All stations on a tributary entering upstream from a main-stream station are listed before that station. A station on a tributary that enters between two main-stream stations is listed between them. A similar order is followed in listing stations on first rank, second rank, and other ranks of tributaries. The rank of any tributary on which a station is situated with respect to the stream to which it is immediately tributary is indicated by an indention in a list of stations in the front of the report. Each indention represents one rank. This downstream order and system of indention show which stations are on tributaries between any two stations and the rank of the tributary on which each station is situated.

As an added means of identification, each hydrologic station and partial-record station has been assigned a station number. These are in the same downstream order used in this report. In assigning station numbers, no distinction is made between partial-record stations and other stations; therefore, the station number for a partial-record station indicates downstream order position in a list made up of both types of stations. Gaps are left in the series of numbers to allow for new stations that may be established; hence, the numbers are not consecutive. The complete 8-digit number for each station such as 09402500, which appears just to the left of the station name, includes the 2-digit part number "09" plus the 6-digit downstream order number "402500."

## NUMBERING SYSTEM FOR WELLS AND MISCELLANEOUS SITES

The 8-digit downstream order station numbers are not assigned to wells and miscellaneous sites where only random water-quality samples or discharge measurements are taken.

The well and miscellaneous site numbering system of the U.S. Geological Survey is based on the grid system of latitude and longitude. The system provides the geographic location of the well or miscellaneous site and a unique number for each site. The number consists of 15 digits. The first 6 digits denote the degrees, minutes, and seconds of latitude, the next 7 digits denote degrees, minutes, and seconds of longitude, and the last 2 digits (assigned sequentially) identify the wells or other sites within a 1-second grid (see fig. 2). In addition to the well number based on latitude and longitude, a local well number is given based on the Gila and Salt River meridian and base line (see fig. 3). A different numbering system is used on the Navajo and Hopi Indian Reservations. The Navajo Indian Reservation is divided into 17 administrative districts, numbered 1 to 5 and 7 to 18, and the Hopi Indian Reservation comprises district 6. The area is further divided into 15-minute quadrangles arbitrarily number from 1 to 151 starting in the northeast corner of the area and numbering consecutively in rows from east to west. Within the 15-minute quadrangle the well is located in miles south and west from the northeast corner of the quadrangle. The first two numbers in the well number represent the district, the next three numbers are the quadrangle, the decimal numbers are miles west by (X) miles south of the northeast corner of the quadrangle. Thus, the number 02 021-05.28X10.68 states that the well is in district 2, quadrangle 21, and is 5.28 miles west by 10.68 miles south of the northeast corner of the quadrangle.

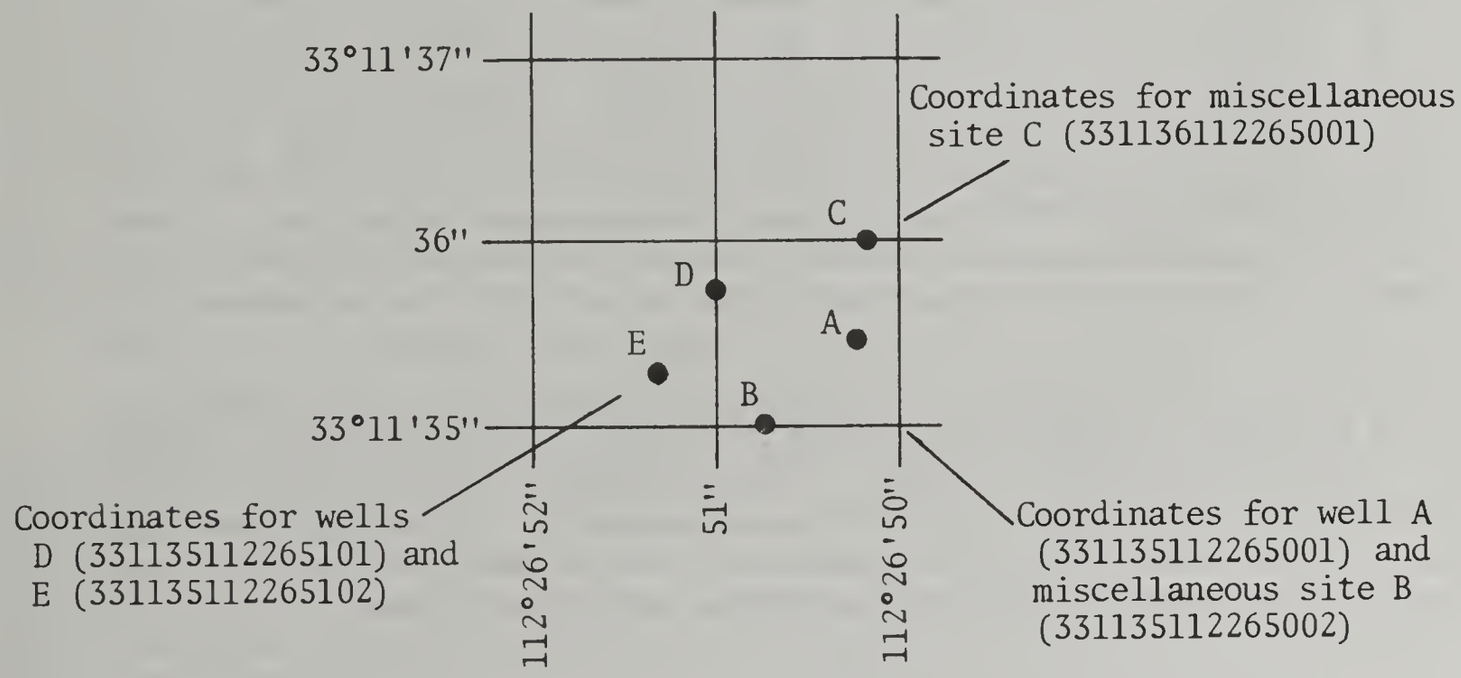
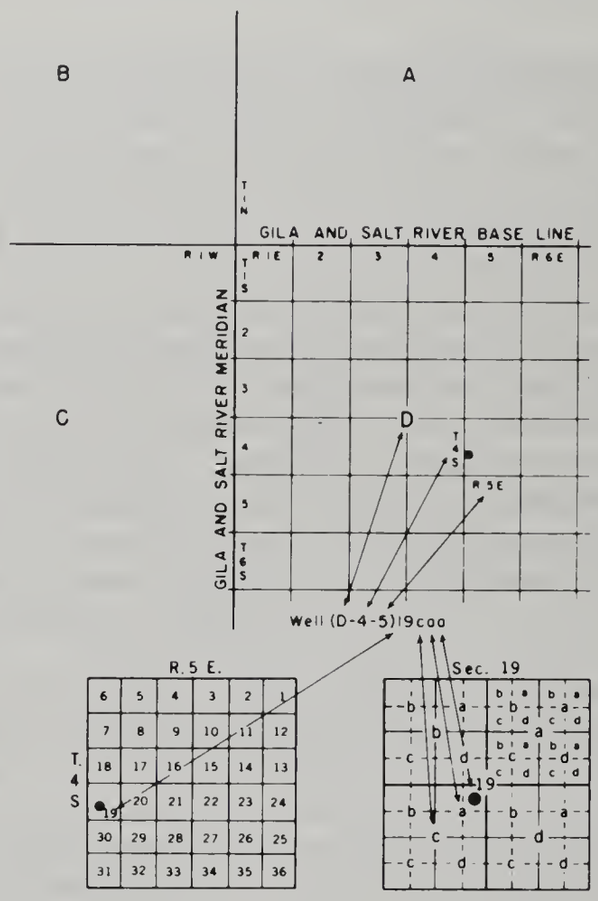



Figure 2.--System for numbering wells and miscellaneous sites (latitude and longitude).




The well numbers used by the Geological Survey in Arizona are in accordance with the Bureau of Land Management's system of land subdivision. The land survey in Arizona is based on the Gila and Salt River meridian and base line, which divide the State into four quadrants. These quadrants are designated counterclockwise by the capital letters A, B, C, and D. All land north and east of the point of origin is in A quadrant, that north and west in B quadrant, that south and west in C quadrant, and that south and east in D quadrant. The first digit of a well number indicates the township, the second the range, and the third the section in which the well is situated. The lowercase letters a, b, c, and d after the section number indicate the well location within the section. The first letter denotes a particular 160-acre tract, the second the 40-acre tract, and the third the 10-acre tract. These letters also are assigned in a counterclockwise direction, beginning in the northeast quarter. If the location is known within the 10-acre tract, three lowercase letters are shown in the well number. In the example shown, well number (D-4-5)19caa designates the well as being in the NE$\frac{1}{4}$NE$\frac{1}{4}$SW$\frac{1}{4}$ sec. 19, T. 4 S., R. 5 E. Where more than one well is within a 10-acre tract, consecutive numbers beginning with 1 are added as suffixes.

FIGURE 3.--WELL-NUMBERING SYSTEM IN ARIZONA.

## SPECIAL NETWORKS AND PROGRAMS

Some of the stations for which data are published in this report are included in special networks and programs. These stations are identified by their title, set in parentheses, under the station name.

Hydrologic bench-mark station is one that provides hydrologic data for a basin in which the hydrologic regimen will likely be governed solely by natural conditions. Data collected at a bench-mark station may be used to separate effects of natural from manmade changes in other basins that have been developed and in which the physiography, climate, and geology are similar to those in the undeveloped bench-mark basin. Included in this program in Arizona is station 09508300, Wet Bottom Creek near Childs.

National stream-quality accounting network (NASQAN) is a data collection network designed by the U.S. Geological Survey to meet many of the information demands of agencies or groups involved in national or regional water-quality planning and management. Both accounting and broad-scale monitoring objectives have been incorporated in the network design. Areal configuration of the network is based on river-basin accounting units (identified by 8-digit hydrologic-unit numbers) designated by the Office of Water Data Coordination in consultation with the Water Resources Council. Primary objectives of the network are (1) to depict areal variability of streamflow and water-quality conditions nationwide on a year-by-year basis and (2) to detect and assess long-term changes in streamflow and stream quality. Included in this network in Arizona are stations 09380000, Colorado River at Lees Ferry; 09401200, Little Colorado River at Cameron; 09421500, Colorado River below Hoover Dam, AZ-NV; 09426600, Bill Williams River near Planet; 09429490, Colorado River above Imperial Dam, AZ-CA; 09466500, Gila River at Calva; 09473500, San Pedro River at Winkelman; 09474000, Gila River at Kelvin; 09489000, Santa Cruz River near Laveen; 09502000, Salt River below Stewart Mountain Dam; 09510000, Verde River below Bartlett Dam; 09518000, Gila River above diversions, at Gillespie Dam; 09520700, Gila River near mouth, near Yuma; 09522000, Colorado River at northerly international boundary above Morelos Dam, near Andrade, CA; 09535300, Vamori Wash at Kom Vo; and 09537500, Whitewater Draw near Douglas.

Pesticide program is a network of regularly sampled water-quality stations where samples are collected to determine the concentration and distribution of pesticides in streams where potential contamination could result from the application of the commonly used insecticides and herbicides. Operation of the network is a Federal interagency activity. Included in this network in Arizona are stations 09380000, Colorado River at Lees Ferry; 09401200, Little Colorado River at Cameron; 09426600, Bill Williams River near Planet; 09429490, Colorado River above Imperial Dam, AZ-CA; 09518000, Gila River above diversions, at Gillespie Dam; and 09522000, Colorado River at northerly international boundary above Morelos Dam, near Andrade, CA.

Radiochemical program is a network of regularly sampled water-quality stations where samples are collected to be analyzed for radioisotopes. The streams that are sampled represent major drainage basins in the conterminous United States. Included in this network in Arizona is station 09429490, Colorado River above Imperial Dam, AZ-CA.

Tritium network is a network of stations which has been established to provide baseline information on the occurrence of tritium in the Nation's surface waters. In addition to the surface-water stations in the network, tritium data are also obtained at a number of precipitation stations. The purpose of the precipitation stations is to provide an estimate sufficient for hydrologic studies of the tritium input to the United States. Included in this network in Arizona is station 09429490, Colorado River above Imperial Dam, AZ-CA.

## EXPLANATION OF STAGE AND WATER-DISCHARGE RECORDS

### Collection and computation of data

The base data collected at gaging stations consist of records of stage and measurements of discharge of streams or canals, and stage, surface area, and contents of lakes or reservoirs. In addition, observations of factors affecting the stage-discharge relation or the stage-capacity relation, weather records, and other information are used to supplement base data in determining the daily flow or volume of water in storage. Records of stage are obtained from either direct readings on a nonrecording gage or from a water-stage recorder that gives either a continuous graph of the fluctuations or a tape punched at selected time intervals. Measurements of discharge are made with a current meter, using the general methods adopted by the Geological Survey. These methods are described in standard textbooks, in Water-Supply Paper 888, and in U.S. Geological Survey Techniques of Water Resources Investigations, book 3, chapter A-6.

For stream-gaging stations, rating tables giving the discharge for any stage are prepared from stage-discharge relation curves. If extensions to the rating curves are necessary to express discharge greater than measured, they are made on the basis of indirect measurements of peak discharge (such as slope-area or contracted-opening measurements, computation of flow over dams or weirs), step-backwater techniques, velocity-area studies, and logarithmic plotting. The daily mean discharge is computed from gage heights and rating tables, then the monthly and yearly mean discharge are computed from the daily figures. If the stage-discharge relation is subject to change because of frequent or continual change in the physical features that form the control, the daily mean discharge is computed by the shifting-control method, in which correction factors based on individual discharge measurements and notes by hydrologists and observers are used in applying the gage heights to the rating tables. If the stage-

discharge relation for a station is temporarily changed by the presence of aquatic growth or debris on the control, the daily mean discharge is computed by what is basically the shifting-control method.

At some stream-gaging stations the stage-discharge relation is affected by backwater from reservoirs, tributary streams, or other sources. This necessitates the use of the slope method in which the slope or fall in a reach of the stream is a factor in computing discharge. The slope or fall is obtained by means of an auxiliary gage set at some distance from the base gage. At some stations the stage-discharge relation is affected by changing stage; at these stations the rate of change in stage is used as a factor in computing discharge.

At some stream-gaging stations the stage-discharge relation is affected by ice in the winter, and it becomes impossible to compute the discharge in the usual manner. Discharge for periods of ice effect is computed on the basis of the gage-height record and occasional winter discharge measurements. Consideration is given to the available information on temperature and precipitation, notes by gage observers and hydrologists, and comparable records of discharge for other stations in the same or nearby basins.

For a lake or reservoir station, capacity tables giving the contents for any stage are prepared from stage-area relation curves defined by surveys. The application of the stage to the capacity table gives the contents, from which the daily, monthly, or yearly change in contents is computed.

If the stage-capacity curve is subject to changes because of deposition of sediment in the reservoir, periodic resurveys of the reservoir are necessary to define new stage-capacity curves. During the period between reservoir surveys the computed contents may be increasingly in error due to the gradual accumulation of sediment.

For some gaging stations there are periods when no gage-height record is obtained or the recorded gage height is so faulty that it cannot be used to compute daily discharge or contents. This happens when the recorder stops or otherwise fails to operate properly, intakes are plugged, the float is frozen in the well, or for various other reasons. For such periods the daily discharges are estimated on the basis of recorded range in stage, prior and subsequent records, discharge measurements, weather records, and comparison with records for other stations in the same or nearby basins. Likewise daily contents may be estimated on the basis of operator's log, prior and subsequent records, inflow-outflow studies, and other information.

## Publication of data

The data in this report generally comprise a description of the station and tabulations of daily and monthly figures. For gaging stations on streams or canals a table showing the daily discharge and monthly and yearly discharge is given. For gaging stations on lakes or reservoirs a monthly summary table of stage and contents or a table showing the daily contents is given. Tables of daily mean gage heights are included for some streamflow stations and for some reservoir stations. Records are published for the water year, which begins on October 1 and ends on September 30.

The description of the gaging station gives the location, drainage area, period of record, notations of revisions of previously published records, type and history of gages, general remarks, average discharge, and extremes of discharge or contents. The location of the gaging station and the drainage area are obtained from the most accurate maps available. River mileage, given under "LOCATION" for some stations, is that determined and used by the Corps of Engineers or other agencies. Periods for which there are published records for the present station or the stations generally equivalent to the present one are given under "PERIOD OF RECORD."

Previously published streamflow records of some stations have been found to be in error on the basis of data or information later obtained. Revisions of such records are usually published along with the current records in one of the annual or compilation reports. In order to make it easier to find such revised records, a paragraph headed "REVISED RECORDS" has been added to the description of all stations for which revised records have been published. Listed therein are all the reports in which revisions have been published, each followed by the water years for which figures are revised in that report. In listing the water years only one number is given; for instance, 1933 stands for the water year October 1, 1932, to September 30, 1933. If no daily, monthly, or annual figures of discharge were affected by the revision, the fact is brought out by notations after the year dates as follows: "(M)" means that only the instantaneous maximum discharge was revised; "(m)" that only the instantaneous minimum was revised; and "(P)" that only peak discharges were revised. If the drainage area has been revised, the report in which the revised figure was first published is given. It should be noted that for all stations for which cubic feet per second per square mile and runoff in inches are published, a revision of the drainage area necessitates corresponding revision of all figures based on the drainage area. Revised figures of cubic feet per second per square mile and runoff in inches resulting from a revision of the drainage area only are usually not published in the annual series of reports.

The type of gage currently in use; the datum of the present gage referred to National Geodetic Vertical Datum of 1929; and a condensed history of the types, locations, and datums of previous gages used during the period of record are given under "GAGE." National Geodetic Vertical Datum of 1929 is explained in "Definition of Terms."

Information pertaining to the accuracy of the discharge records and to conditions which affect the natural flow of the gaging station is given under "REMARKS." For reservoir stations information on the dam forming the reservoir, the capacity, outlet works and spillway, and purpose and use of the reservoir is given under "REMARKS."

The average discharge for the number of years indicated is given under "AVERAGE DISCHARGE"; it is not given for stations having fewer than 5 complete years of record or for stations where changes in water development during the period of record cause the figure to have little significance. In addition, the median of yearly mean discharges is given for stream-gaging stations having 10 or more complete years of record if the median differs from the average by more than 10 percent. Under "EXTREMES" are given first, the extremes for the period of record, second, information available outside the period of record, and last, those for the current year. Unless otherwise qualified, the maximum discharge (or contents) is the instantaneous maximum corresponding to the crest stage obtained by use of a water-stage recorder (graphic or digital), a crest-stage gage, or a nonrecording gage read at the time of the crest. If the maximum gage height did not occur on the same day as the maximum discharge (or contents), it is given separately. Similarly, the minimum is the instantaneous minimum unless otherwise qualified. For some stations peak discharges are listed with EXTREMES FOR THE CURRENT YEAR; if they are, all independent peaks, including the maximum for the year, above the selected base with the time of occurrence and corresponding gage heights are published in tabular format. The base discharge, which is given in the table heading, is selected so that an average of about three peaks a year will be presented. Peak discharges are not published for any canals, ditches, drains, or for any stream for which the peaks are subject to substantial control by man. Time of day is expressed in 24-hour local standard time; for example, 12:30 a.m. is 0030, 1:30 p.m. is 1330. The minimums for these stations are published in a separate paragraph following the table of peaks.

Skeleton rating tables are published, immediately following EXTREMES, for stream-gaging stations where they serve a useful purpose and the dates of applicability can be easily identified.

The daily table for stream-gaging stations gives the mean discharge for each day and is followed by monthly and yearly summaries. In the monthly summary below the daily table, the line headed "TOTAL" gives the sum of the daily figures. The line headed "MEAN" gives the average flow in cubic feet per second during the month. The lines headed "MAX" and "MIN" give the maximum and minimum daily discharges, respectively, for the

month. Discharge for the month also may be expressed in cubic feet per second per square mile (line headed "CFSM"), or in inches (line headed "IN"), or in acre-feet (line headed "AC-FT"). Figures for cubic feet per second per square mile and runoff in inches are omitted if there is extensive regulation or diversion, if the drainage area includes large noncontributing areas, or if the average annual rainfall over the drainage basin is usually less than 20 inches. In the yearly summary below the monthly summary, the figures shown are the appropriate daily discharges for the calendar and water years.

Footnotes to the table of daily discharge are introduced by the word "NOTE." Footnotes are used to indicate periods for which the discharge is computed or estimated by special methods because of no gage-height record, backwater from various sources, or other unusual conditions. Periods of no gage-height record are indicated if the period is continuous for a month or more or includes the maximum discharge for the year. Periods of backwater from an unusual source, of indefinite stage-relation, or of any other unusual condition at the gage site are indicated only if they are a month or more in length and the accuracy of the records is affected. Days on which the stage-discharge relation is affected by ice are not indicated. The methods used in computing discharge for various unusual conditions have been explained in preceding paragraphs.

For most gaging stations on lakes and reservoirs the data presented comprise a description of the station and a monthly summary table of stage and contents. For some reservoirs a table showing daily contents or stage is given. A skeleton table of capacity at given stages is published for all reservoirs for which records are published on a daily basis, but is not published for reservoirs for which only monthly data are given.

Data collected at partial-record stations follow the information for continuous record sites. Data for partial-record discharge stations are presented in two tables. The first is a table of discharge measurements at low-flow partial-record stations, and the second is a table of annual maximum stage and discharge at crest-stage stations. The tables of partial-record stations are followed by a listing of discharge measurements made at sites other than continuous-record or partial-record stations. Occasionally a series of discharge measurements are made within a short time period to investigate the seepage gains or losses along a reach of a stream or to determine the low-flow characteristics of an area. Such measurements are also given in special tables following the tables of partial-record stations.

## Accuracy of field data and computed results

The accuracy of streamflow data depends primarily on (1) the stability of the stage-discharge relation or, if the control is unstable, the frequency of discharge measurements, and (2) the accuracy of observations of stage, measurements of discharge, and interpretations of records.

The station description under "REMARKS" states the degree of accuracy of the records. "Excellent" means that about 95 percent of the daily discharges are within 5 percent; "good", within 10 percent; and "fair", within 15 percent. "Poor" means that daily discharges have less than "fair" accuracy.

Figures of daily mean discharge in this report are shown to the nearest hundredth of a cubic foot per second for discharges of less than 1 $ft^3/s$; to tenths between 1.0 and 10 $ft^3/s$; to whole numbers between 10 and 1,000 $ft^3/s$; and to 3 significant figures above 1,000 $ft^3/s$. The number of significant figures used is based solely on the magnitude of the figure. The same rounding rules apply to discharge figures listed for partial-record stations.

Discharge at many stations, as indicated by the monthly mean, may not reflect natural runoff due to the effects of diversion, consumption, regulation by storage, increase or decrease in evaporation due to artificial causes, or to other factors. For such stations, figures of cubic feet per second per square mile and of runoff in inches are not published unless satisfactory adjustments can be made for diversions, for changes in contents of reservoirs, or for other changes incident to use and control. Evaporation from a reservoir is not included in the adjustments for change in reservoir contents, unless it is so stated. Even at those stations where adjustments are made, large errors in computed runoff may occur if adjustments or losses are large in comparison with the observed discharge.

## Other data available

Information of a more detailed nature than that published for most of the gaging stations such as observations of water temperatures, discharge measurements, gage-height records, and rating tables is on file in the district office. Also most gaging-station records are available in computer-usable form and many statistical analyses have been made.

Information on the availability of unpublished data or statistical analyses may be obtained from the district office.

## Records of discharge collected by agencies other than the Geological Survey

The National Water Data Exchange, Water Resources Division, U.S. Geological Survey, National Center, Reston, Va. 22092, maintains an index of records of discharge not published by the Geological Survey. Information on records available at specific sites can be obtained upon request.

# EXPLANATION OF WATER-QUALITY RECORDS

## Collection and examination of data

Surface-water samples for analyses usually are collected at or near gaging stations. The quality-of-water records are given immediately following the discharge records at these stations.

The descriptive heading for water-quality records gives the period of record for all water-quality data; the period of daily record for parameters that are measured on a daily basis (specific conductance, pH, dissolved oxygen, water temperature, sediment discharge, etc.); extremes for the period of daily record; extremes for the current year; and general remarks.

For ground-water records, no descriptive statements are given; however, the well number, depth of well, date of sampling and/or other pertinent data are given in the table containing the chemical analyses of the ground water.

## Water analysis

Most methods for collecting and analyzing water samples are described in the U.S. Geological Survey Techniques of Water-Resources Investigations listed on a following page.

One sample can define adequately the water quality at a given time if the mixture of solutes throughout the stream cross section is homogeneous. However, the concentration of solutes at different locations in the cross section may vary widely with different rates of water discharge, depending on the source of material and the turbulence and mixing of the stream. Some streams must be sampled through several vertical sections to obtain a representative sample needed for an accurate mean concentration and for use in calculating load.

Chemical-quality data published in this report are considered to be the most representative values available for the stations listed. The values reported represent water-quality conditions at the time of sampling as much as possible, consistent with available sampling techniques and methods of analysis. In the rare case where an apparent inconsistency exists between a reported pH value and the relative abundance of carbon dioxide species (carbonate and bicarbonate), the inconsistency is the result of a slight uptake of carbon dioxide from the air by the sample between measurement of pH in the field and determination of carbonate and bicarbonate in the laboratory.

For chemical-quality stations equipped with digital monitors, the records consist of daily maximum, minimum, and mean values for each constituent measured and are based upon hourly punches beginning at 0100 hours and ending at 2400 hours for the day of record. More detailed records (hourly values) may be obtained from the district office.

## Water temperature

Water temperatures are measured at most of the water-quality stations. In addition, water temperatures are taken at time of discharge measurements for water-discharge stations. For stations where water temperatures are taken manually once or twice daily, the water temperatures are taken at about the same time each day. Large streams have a small daily temperature change; shallow streams may have a daily range of several degrees and may follow closely the changes in air temperature. Some streams may be affected by waste-heat discharges.

At stations where recording instruments are used, either mean temperatures or maximum and minimum temperatures for each day are published.

## Sediment

Suspended-sediment concentrations are determined from samples collected by using depth-integrating samplers. Samples usually are obtained at several verticals in the cross section, or a single sample may be obtained at a fixed point and a coefficient applied to determine the mean concentration in the cross sections.

During periods of rapidly changing flow or rapidly changing concentration, samples may have been collected more frequently (twice daily or, in some instances, hourly). The published sediment discharges for days of rapidly changing flow or concentration were computed by the subdivided day method (time-discharge weighted average). Therefore, for those days when the published sediment discharge value differs from the value computed as the product of discharge times mean concentration times 0.0027, the reader can assume that the sediment discharge for that day was computed by the subdivided day method. For periods when no samples were collected, daily loads of suspended sediment were estimated on the basis of water discharge, sediment concentrations observed immediately before and after the periods, and suspended-sediment loads for other periods of similar discharge.

At other stations, suspended-sediment samples were collected periodically at many verticals in the stream cross section. Although data collected periodically may represent conditions only at the time of observations, such data are useful in establishing seasonal relations between quality and streamflow in predicting long-term sediment-discharge characteristics of the stream.

In addition to the records of the quantities of suspended sediment, records of the periodic measurements of the particle-size distribution of the suspended sediment and bed material are included.

## EXPLANATION OF GROUND-WATER LEVEL RECORDS

### Collection and publication of the data

Only ground-water level data from a basic network of observation wells are published herein. This basic network contains observation wells so located that the most significant data are obtained from the fewest wells in the most important aquifers.

Each well is identified by means of (1) a 15-digit number that is based on latitude and longitude (see figure 2) and (2) a local number that is provided for local needs (see figure 3).

Measurements are made in many types of wells, under varying conditions of access and at different temperatures, hence, neither the method of measurement nor the equipment can be standardized. At each observation well, however, the equipment and techniques used are those that will ensure that measurements at each well are consistent.

Water-level measurements in this report are given in feet with reference to land-surface datum (lsd). Land-surface datum is a datum plane that is approximately at land surface at each well. If known, the altitude of the land-surface datum referenced to National Geodetic Vertical Datum of 1929 (NGVD) is given. National Geodetic Vertical Datum of 1929 is a geodetic datum derived from a general adjustment of the first order level nets of both the United States and Canada.

Water levels are reported to as many significant figures as can be justified by the local conditions. For example, in a measurement of a depth to water of several hundred feet, the error in determining the absolute value of the total depth to water may be a few tenths of a foot, whereas the error in determining the net change of water level between successive measurements may be only a hundredth or a few hundredths of a foot. For lesser depths to water the accuracy is greater. Accordingly, most measurements are reported to a hundredth of a foot, but some are given only to a tenth of a foot or a larger unit.

## PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS

Thirty-four manuals by the U.S. Geological Survey have been published to date in the series on techniques describing procedures for planning and executing specialized work in water-resources investigations. The material is grouped under major subject headings called books and is further divided into sections and chapters. For example, Section A of Book 3 (Applications of Hydraulics) is on surface water. The chapter, the unit of publication, is limited to a narrow field of subject matter. This format permits flexibility in revision and publication as the need arises. The reports listed below are for sale by the U.S. Geological Survey, Branch of Distribution, 1200 South Eads Street, Arlington, VA 22202 (authorized agent of the Superintendent of Documents, Government Printing Office. Prices are effective October 1978 but are subject to change.

NOTE: When ordering any of these publications, please give the title, book number, chapter number, and "U.S. Geological Survey Techniques of Water-Resources Investigations".

1-D1. *Water temperature-influential factors, field measurement, and data presentation,* by H. H. Stevens Jr., J. F. Ficke, and G. F. Smoot: USGS--TWRI Book 1, Chapter D1. 1975. 65 pages. $1.60.

1-D2. *Guidelines for collection and field analysis of ground-water samples for selected unstable constituents,* by W.W.Wood: USGS--TWRI Book 1, Chapter D2. 1976. 24 pages. $0.85

2-D1. *Application of surface geophysics to ground-water investigations,* by A. A. R. Zohdy, G. P. Eaton, and D. R. Mabey: USGS--TWRI Book 2, Chapter D1. 1974. 116 pages. $1.90.

2-E1. *Application of borehole geophysics to water-resources investigations,* by W. S. Keys and L. M. MacCary: USGS--TWRI Book 2, Chapter E1. 1971. 126 pages. $1.75.

3-A1. *General field and office procedures for indirect discharge measurements,* by M. A. Benson and Tate Dalrymple: USGS--TWRI Book 3, Chapter A1. 1967. 30 pages. $1.00.

3-A2. *Measurement of peak discharge by the slope-area method,* by Tate Dalrymple and M. A. Benson: USGS--TWRI Book 3, Chapter A2. 1967. 12 pages. $0.35.

3-A3. *Measurement of peak discharge at culverts by indirect methods,* by G. L. Bodhaine: USGS--TWRI Book 3, Chapter A3. 1968. 60 pages. $0.40.

3-A4. *Measurement of peak discharge at width contractions by indirect methods,* by H. F. Matthai: USGS--TWRI Book 3, Chapter A4. 1967. 44 pages. $1.00.

3-A5. *Measurement of peak discharge at dams by indirect methods,* by Harry Hulsing: USGS--TWRI Book 3, Chapter A5. 1967. 29 pages. $0.35.

3-A6. *General procedure for gaging streams,* by R. W. Carter and Jacob Davidian: USGS--TWRI Book 3, Chapter A6, 1968, 13 pages. $1.00.

3-A7. *Stage measurements at gaging stations,* by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A7. 1968. 28 pages. $1.40.

3-A8. *Discharge measurements at gaging stations,* by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A8. 1969. 65 pages. $1.25.

3-A11. *Measurement of discharge by moving-boat method,* by G. F. Smoot and C. E. Novak: USGS--TWRI Book 3, Chapter A11. 1969. 22 pages. $1.20.

3-A12. *Fluorometric procedures for dye tracing,* by J. F. Wilson Jr.: USGS--TWRI Book 3, Chapter A12. 1968. 31 pages. $0.35. Not currently available.

3-B1. *Aquifer-test design, observation, and data analysis,* by R. W. Stallman: USGS--TWRI Book 3, Chapter B1. 1971. 26 pages. $0.70.

3-B2. *Introduction to ground-water hydraulics, a programed text for self-instruction,* by G. D. Bennett: USGS--TWRI Book 3, Chapter B2 1976. 172 pages. $2.50.

3-C1. *Fluvial sediment concepts,* by H. P. Guy: USGS--TWRI Book 3, Chapter C1. 1970. 55 pages. $2.50.

3-C2. *Field methods for measurement of fluvial sediment,* by H. P. Guy and V. W. Norman: USGS--TWRI Book 3, Chapter C2, 1970. 59 pages. $2.50.

3-C3. *Computation of fluvial-sediment discharge,* by George Porterfield: USGS--TWRI Book 3, Chapter C3. 1972. 66 pages. $2.10.

4-A1. *Some statistical tools in hydrology,* by H. C. Riggs: USGS--TWRI Book 4 Chapter A1. 1968. 39 pages. $1.60.

4-A2. *Frequency curves,* by H. C. Riggs: USGS--TWRI Book 4, Chapter A2. 1968. 15 pages. $1.20

4-B1. *Low-flow investigations,* by H. C. Riggs: USGS--TWRI Book 4, Chapter B1. 1972, 18 pages. $0.65.

4-B2. *Storage analyses for water supply,* by H. C. Riggs and C. H. Hardison: USGS--TWRI Book 4, Chapter B2. 1973. 20 pages. $0.75.

4-B3. *Regional analyses of streamflow characteristics,* by H. C. Riggs: USGS--TWRI Book 4, Chapter B3. 1973. 15 pages. $0.65.

4-D1. *Computation of rate and volume of stream depletion by wells,* by C. T. Jenkins: USGS--TWRI Book 4, Chapter D1. 1970. 17 pages. $1.10.

5-A1. *Methods for collection and analysis of water samples for dissolved minerals and gases,* by Eugene Brown, M. W. Skougstad, and M. J. Fishman: USGS--TWRI Book 5, Chapter A1. 1970. 160 pages. $2.40..

5-A2. *Determination of minor elments in water by emission spectroscopy,* by P. R. Barnett and E. C. Mallory, Jr.: USGS--TWRI Book 5, Chapter A2. 1971. 31 pages. $0.80.

5-A3. *Methods for analysis of organic substances in water,* by D. F. Goerlitz and Eugene Brown: USGS--TWRI Book 5, Chapter A3. 1972. 40 pages. $0.90.

5-A4.* *Methods for collection and analysis of aquatic biological and microbiological samples*, edited by P.E. Greeson, T.A. Ehlke, G.A. Irwin, B.W. Lium, and K.V. Slack: USGS--TWRI Book 5, Chapter A4. 1977. 332 pages. $20.00.

5-A5.* *Methods for determination of radioactive substances in water and fluvial sediments*, by L.L. Thatcher, V.J. Janzer, and K.W. Edwards: USGS--TWRI Book 5, Chapter A5. 1977. 95 pages. $16.00.

5-C1. *Laboratory theory and methods for sediment analysis*, by H. P. Guy: USGS--TWRI Book 5, Chapter C1. 1969. 58 pages. $2.10.

7-C1. *Finite difference model for aquifer simulation in two dimensions with results of numerical experiments*, by P. C. Trescott, G. F. Pinder, and S. P. Larson: USGS--TWRI Book 7, Chapter C1. 1976. 116 pages. $2.30.

8-A1. *Methods of measuring water levels in deep wells*, by M. S. Garber and F. C. Koopman: USGS--TWRI Book 8, Chapter A1. 1968. 23 pages. $0.70.

8-B2. *Calibration and maintenance of vertical-axis type current meters*, by G. F. Smoot and C. E. Novak: USGS--TWRI Book 8, Chapter B2. 1968. 15 pages. $1.10.

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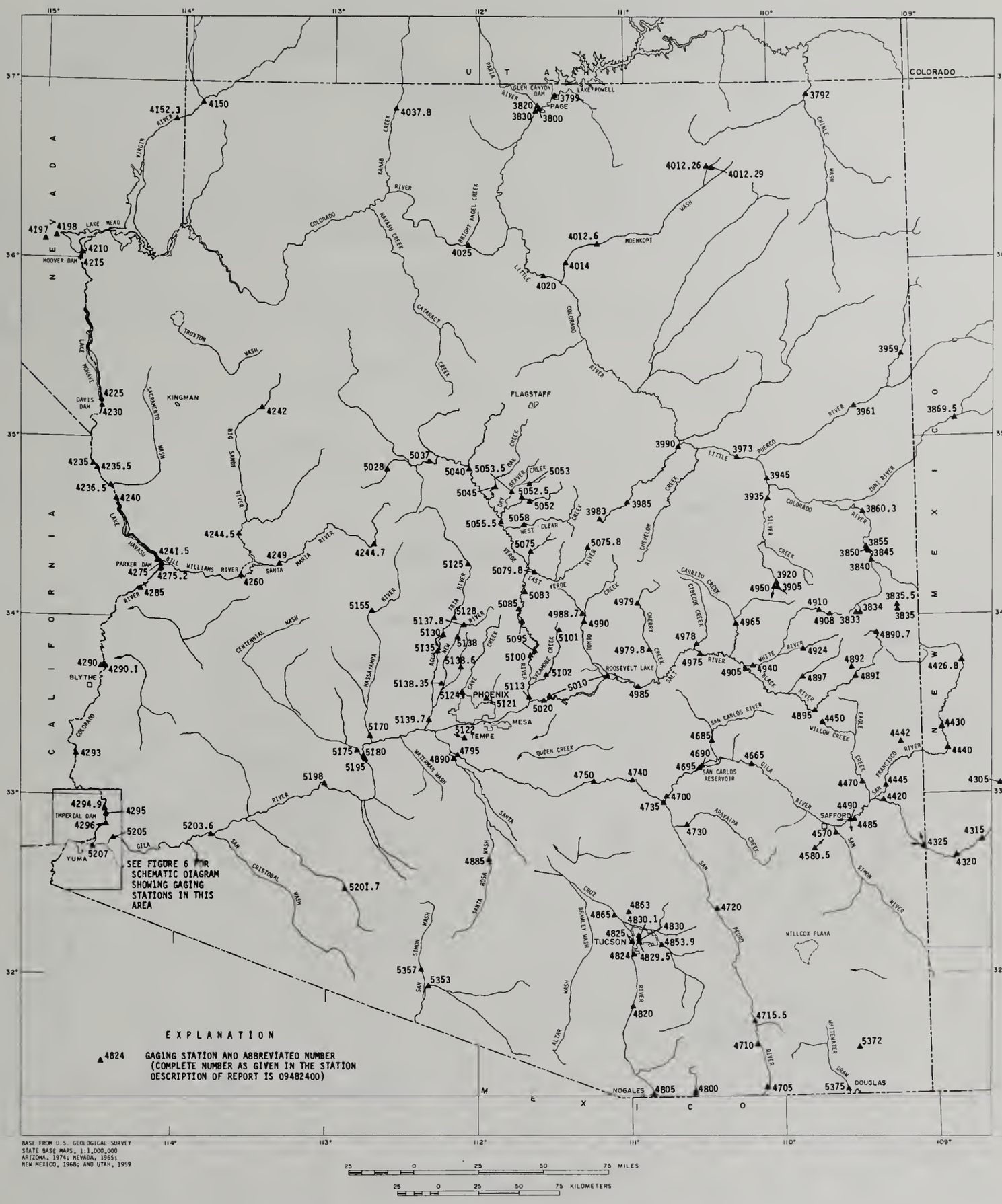


FIGURE 4.--MAP OF ARIZONA SHOWING LOCATION OF GAGING STATIONS.

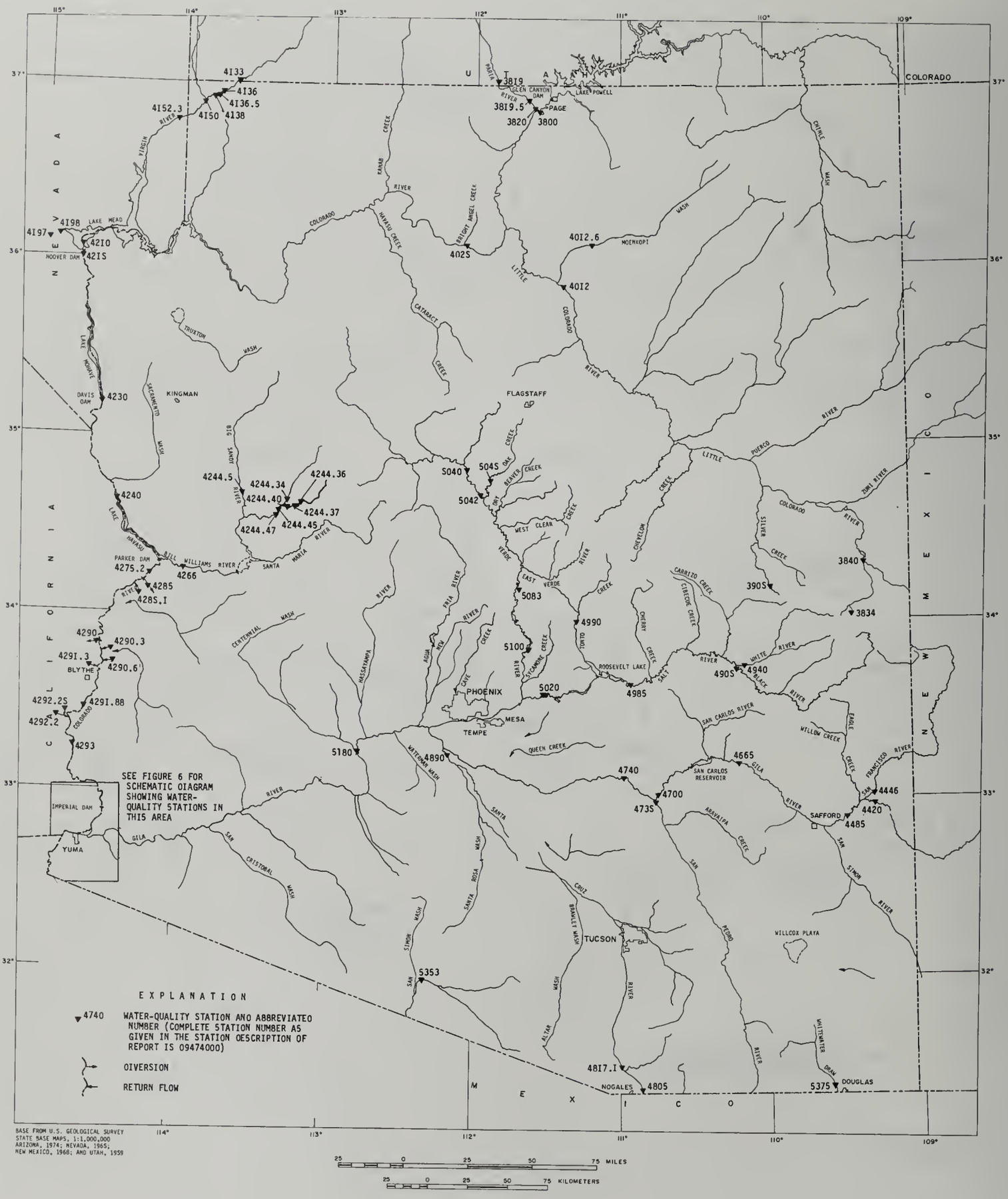


FIGURE 5.--MAP OF ARIZONA SHOWING LOCATION OF WATER-QUALITY STATIONS.

SAN JUAN RIVER BASIN

## 09379200 CHINLE CREEK NEAR MEXICAN WATER, AZ

LOCATION.--Lat 36°56'38", long 109°42'36", in sec.19, T.41 N., R.25 E. (unsurveyed), Apache County, Hydrologic Unit 14080204, in Navajo Indian Reservation, in midstream 150 ft (46 m) upstream from bridge on U.S. Highway 160, 3 mi (5 km) upstream from Walker Creek, 4 mi (6 km) southwest of Mexican Water, 5 mi (8 km) downstream from confluence of Chinle Wash and Laguna Creek, and 6 mi (10 km) upstream from Arizona-Utah State line.

DRAINAGE AREA.--3,660 $mi^2$ (9,480 $km^2$), approximately, of which 360 $mi^2$ (932 $km^2$) is noncontributing.

PERIOD OF RECORD.--October 1964 to current year. Prior to October 1970 published as Chinle Wash near Mexican Water.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 4,720 ft (1,439 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records poor. Some diversions upstream for irrigation, stock tanks, and domestic use. Many Farms Reservoir, about 25 mi (40 km) upstream, was built in 1939 with an original capacity of 25,000 acre-ft (30.8 $hm^3$). The reservoir provides off-channel storage for irrigation of about 1,600 acres (6.48 $km^2$).

AVERAGE DISCHARGE.--14 years, 17.8 $ft^3/s$ (0.504 $m^3/s$), 12,900 acre-ft/yr (15.9 $hm^3/yr$); median of yearly mean discharges, 14 $ft^3/s$ (0.40 $m^3/s$), 10,100 acre-ft/yr (12 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,880 $ft^3/s$ (280 $m^3/s$) Sept. 7, 1970, gage height, 7.55 ft (2.301 m), from rating curve extended above 600 $ft^3/s$ (17 $m^3/s$) on basis of slope-area measurements at gage heights 5.4, 6.1, and 7.55 ft (1.65, 1.86, and 2.301 m); no flow at times in each year. The flood of Sept. 7, 1970, is the highest since at least 1950 (information from a local resident).

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*) and peak discharges above base of 500 $ft^3/s$ (14 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|
| Mar. 6 | 2000 | 505 | 14.3 | 4.78 | 1.457 |
| July 18 | 1130 | *751 | 21.3 | 5.13 | 1.564 |
| Aug. 20 | 2330 | 660 | 18.7 | 5.00 | 1.524 |

No flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .40 | 1.0 | .40 | 2.0 | 2.0 | 7.8 | .30 | 80 | .00 | .00 | .10 | .00 |
| 2 | .40 | 1.0 | .40 | 2.0 | 2.0 | 67 | .10 | 200 | .00 | .00 | .00 | .00 |
| 3 | .40 | 1.0 | .40 | 2.0 | 2.0 | 75 | .50 | 100 | .00 | .00 | .00 | .00 |
| 4 | .40 | 5.0 | .40 | 2.0 | 2.0 | 154 | 4.6 | 40 | .00 | .00 | .00 | .00 |
| 5 | .40 | 10 | .40 | 2.0 | 2.0 | 28 | 4.8 | 50 | .00 | .00 | .00 | .00 |
| 6 | 1.0 | 30 | .40 | 2.0 | 2.0 | 91 | .80 | 60 | .00 | .00 | .00 | .00 |
| 7 | 1.0 | 50 | .40 | 2.0 | 2.0 | 53 | .40 | 50 | .00 | .00 | .00 | .00 |
| 8 | 1.0 | 40 | .40 | 2.0 | 10 | 32 | .20 | 40 | .00 | .00 | .00 | .00 |
| 9 | 1.0 | 38 | .40 | 2.0 | 9.2 | 16 | .30 | 30 | .00 | .00 | .00 | .00 |
| 10 | 1.0 | 44 | .40 | 2.0 | 15 | 7.4 | .40 | 20 | .00 | .00 | .00 | .00 |
| 11 | 1.0 | 10 | .40 | 2.0 | 12 | 7.7 | .40 | 25 | .00 | 33 | .00 | .00 |
| 12 | 1.0 | 2.0 | .40 | 2.0 | 28 | 8.8 | .40 | 30 | .00 | 11 | .00 | .00 |
| 13 | 1.0 | 1.0 | .40 | 2.0 | 23 | 7.7 | .40 | 31 | .00 | 2.7 | .00 | .00 |
| 14 | 1.0 | .80 | .40 | 2.0 | 12 | 11 | .50 | 15 | .00 | 1.0 | .00 | .00 |
| 15 | 1.0 | .60 | .40 | 2.0 | 9.6 | 2.2 | .80 | 4.0 | .00 | .40 | .00 | .00 |
| 16 | 1.0 | .40 | .40 | 2.0 | 10 | 1.4 | 30 | 1.4 | .00 | .20 | .00 | 7.8 |
| 17 | 1.0 | .40 | .40 | 2.0 | 10 | 1.0 | 22 | .70 | .00 | .00 | .00 | 8.4 |
| 18 | 1.0 | .40 | 1.0 | 2.0 | 5.1 | .90 | 26 | .20 | .00 | 240 | .00 | .90 |
| 19 | 1.0 | .40 | 2.0 | 2.0 | 8.6 | .80 | 40 | .30 | .00 | 22 | .00 | .90 |
| 20 | 1.0 | .40 | 2.0 | 2.0 | 4.0 | 1.0 | 38 | .40 | .00 | 5.5 | 64 | .70 |
| 21 | 1.0 | .40 | 2.0 | 2.0 | 3.0 | 1.1 | 58 | 19 | .00 | 1.5 | 168 | .90 |
| 22 | 1.0 | .40 | 2.0 | 2.0 | 8.9 | 1.0 | 52 | 18 | .00 | .20 | 15 | 8.0 |
| 23 | 1.0 | .40 | 2.0 | 2.0 | 14 | 2.0 | 26 | 12 | .00 | .10 | 4.8 | 5.0 |
| 24 | 1.0 | .40 | 2.0 | 2.0 | 12 | 12 | 14 | 6.2 | .00 | .00 | 2.4 | 2.0 |
| 25 | 1.0 | .40 | 2.0 | 2.0 | 9.6 | 8.0 | 12 | 2.2 | .00 | .00 | 1.0 | 1.0 |
| 26 | 1.0 | .40 | 2.0 | 2.0 | 7.7 | 5.9 | 17 | .70 | .00 | .00 | .20 | .00 |
| 27 | 1.0 | .40 | 2.0 | 2.0 | 5.2 | 3.7 | 27 | .40 | .00 | .00 | .00 | .00 |
| 28 | 1.0 | .40 | 2.0 | 2.0 | 4.5 | 1.1 | 11 | .20 | .00 | .00 | .00 | .00 |
| 29 | 1.0 | .40 | 2.0 | 2.0 | --- | .70 | 13 | .20 | .00 | .00 | .00 | .00 |
| 30 | 1.0 | .40 | 2.0 | 2.0 | --- | .40 | 10 | .10 | .00 | .70 | .00 | .00 |
| 31 | 1.0 | --- | 2.0 | 2.0 | --- | .40 | --- | .00 | --- | .90 | .00 | --- |
| TOTAL | 28.00 | 240.40 | 33.80 | 62.0 | 233.4 | 610.00 | 410.90 | 837.00 | .00 | 319.20 | 255.50 | 35.60 |
| MEAN | .90 | 8.01 | 1.09 | 2.00 | 8.34 | 19.7 | 13.7 | 27.0 | .000 | 10.3 | 8.24 | 1.19 |
| MAX | 1.0 | 50 | 2.0 | 2.0 | 28 | 154 | 58 | 200 | .00 | 240 | 168 | 8.4 |
| MIN | .40 | .40 | .40 | 2.0 | 2.0 | .40 | .10 | .00 | .00 | .00 | .00 | .00 |
| AC-FT | 58 | 477 | 67 | 123 | 463 | 1210 | 815 | 1660 | .00 | 633 | 507 | 71 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1977 | TOTAL | 9391.70 | MEAN | 25.7 | MAX | 2900 | MIN | .00 | AC-FT | 18630 |
| WTR YR 1978 | TOTAL | 3065.80 | MEAN | 8.40 | MAX | 240 | MIN | .00 | AC-FT | 6080 |

NOTE.--No gage-height record Oct. 1 to Feb. 8.

## 09379900 LAKE POWELL AT GLEN CANYON DAM, AZ

LOCATION.--Lat 36°56'12", long 111°29'00", in sec.24, T.41 N., R.8 E., Coconino County, Hydrologic Unit 14070006, at Glen Canyon Dam on Colorado River, 900 ft (270 m) upstream from bridge on U.S. Highway 89, 1.4 mi (2.3 km) downstream from Wahweap Creek, 2 mi (3 km) northwest of Page, and 12 mi (19 km) downstream from Utah-Arizona State line.

DRAINAGE AREA.--111,700 $mi^2$ (289,300 $km^2$), approximately, including 3,959 $mi^2$ (10,254 $km^2$) in Great Divide basin in southern Wyoming, which is noncontributing (previously considered part of the Missouri River basin).

PERIOD OF RECORD.--March 1963 to current year.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Sept. 1, 1964, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed by concrete-arch gravity dam; storage began Mar. 13, 1963; dam completed September 1963. Total capacity, 27,000,000 acre-ft (33,300 $hm^3$), consisting of the following: dead storage, 1,998,000 acre-ft (2,460 $hm^3$) below elevation 3,370 ft (1,027 m)--sill of outlet gates; usable contents, 25,002,000 acre-ft (30,800 $hm^3$) between elevations 3,370 ft (1,027 m) and 3,700 ft (1,128 m)--top of conservation pool. Reservoir is used for power development, to provide storage replacement for upstream irrigation development, and to meet downstream requirements under the Colorado River Compact of 1922. Figures given herein represent usable contents; prior to Oct. 1, 1968, figures of total contents were published (prior to sealing of diversion tunnel July 7, 1965, all storage was usable).

COOPERATION.--Records furnished by Bureau of Reclamation.

EXTREMES (at 2400) FOR PERIOD OF RECORD.--Maximum contents, 21,177,000 acre-ft (26,100 $hm^3$) July 25, 1975, elevation, 3,674.93 ft (1,120.119 m); minimum since power pool level was reached (Aug. 16, 1964), 4,166,000 acre-ft (5,140 $hm^3$) Mar. 18, 1965, elevation, 3,490.76 ft (1,063.984 m).

EXTREMES (at 2400) FOR CURRENT YEAR.--Maximum contents, 18,142,000 acre-ft (22,400 $hm^3$) July 24, elevation, 3,652.75 ft (1,113.358 m); minimum, 14,483,000 acre-ft (17,900 $hm^3$) Mar. 6, elevation, 3,622.29 ft (1,104.074 m).

Capacity table (elevation, in feet, and usable contents, in acre-feet)

| | | | |
|---|---|---|---|
| 3,620 | 14,231,000 | 3,640 | 16,542,000 |
| 3,625 | 14,787,000 | 3,645 | 17,157,000 |
| 3,630 | 15,357,000 | 3,650 | 17,789,000 |
| 3,635 | 15,942,000 | 3,655 | 18,436,000 |

CONTENTS, IN THOUSANDS OF ACRE-FEET, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
INSTANTANEOUS OBSERVATIONS AT 2400

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 16130 | 16015 | 15872 | 15344 | 14770 | 14518 | 14532 | 15029 | 16053 | 17793 | 18063 | 17224 |
| 2 | 16128 | 16020 | 15864 | 15325 | 14755 | 14505 | 14536 | 15039 | 16094 | 17839 | 18047 | 17201 |
| 3 | 16117 | 16016 | 15869 | 15303 | 14744 | 14484 | 14548 | 15050 | 16135 | 17878 | 18033 | 17174 |
| 4 | 16106 | 16003 | 15876 | 15272 | 14744 | 14485 | 14559 | 15080 | 16189 | 17914 | 18011 | 17136 |
| 5 | 16099 | 15992 | 15868 | 15245 | 14741 | 14484 | 14578 | 15069 | 16233 | 17947 | 17993 | 17108 |
| 6 | 16091 | 15999 | 15856 | 15225 | 14737 | 14483 | 14591 | 15099 | 16280 | 17983 | 17971 | 17065 |
| 7 | 16084 | 15987 | 15838 | 15197 | 14719 | 14486 | 14604 | 15118 | 16334 | 17998 | 17948 | 17032 |
| 8 | 16078 | 15982 | 15822 | 15181 | 14714 | 14486 | 14611 | 15142 | 16374 | 18025 | 17918 | 16991 |
| 9 | 16075 | 15974 | 15800 | 15160 | 14706 | 14489 | 14633 | 15159 | 16416 | 18041 | 17893 | 16961 |
| 10 | 16073 | 15971 | 15797 | 15135 | 14704 | 14493 | 14665 | 15178 | 16469 | 18057 | 17861 | 16928 |
| 11 | 16066 | 15965 | 15786 | 15119 | 14706 | 14494 | 14688 | 15191 | 16535 | 18061 | 17837 | 16908 |
| 12 | 16054 | 15965 | 15772 | 15107 | 14713 | 14494 | 14709 | 15213 | 16599 | 18068 | 17808 | 16875 |
| 13 | 16045 | 15972 | 15752 | 15094 | 14710 | 14496 | 14728 | 15234 | 16668 | 18079 | 17785 | 16848 |
| 14 | 16048 | 15971 | 15733 | 15080 | 14695 | 14503 | 14735 | 15253 | 16729 | 18079 | 17771 | 16833 |
| 15 | 16053 | 15971 | 15717 | 15073 | 14681 | 14514 | 14755 | 15264 | 16797 | 18092 | 17734 | 16810 |
| 16 | 16059 | 15962 | 15697 | 15052 | 14677 | 14519 | 14784 | 15287 | 16875 | 18117 | 17693 | 16794 |
| 17 | 16056 | 15955 | 15683 | 15035 | 14664 | 14527 | 14797 | 15314 | 16964 | 18103 | 17663 | 16778 |
| 18 | 16053 | 15948 | 15664 | 15022 | 14655 | 14536 | 14814 | 15354 | 17057 | 18109 | 17638 | 16769 |
| 19 | 16048 | 15942 | 15640 | 15001 | 14649 | 14548 | 14832 | 15406 | 17134 | 18110 | 17614 | 16756 |
| 20 | 16045 | 15940 | 15610 | 14973 | 14644 | 14543 | 14846 | 15471 | 17209 | 18108 | 17593 | 16734 |
| 21 | 16044 | 15917 | 15586 | 14959 | 14632 | 14537 | 14853 | 15525 | 17269 | 18122 | 17564 | 16709 |
| 22 | 16043 | 15904 | 15549 | 14947 | 14622 | 14530 | 14863 | 15576 | 17324 | 18125 | 17524 | 16696 |
| 23 | 16040 | 15901 | 15524 | 14923 | 14603 | 14530 | 14883 | 15623 | 17373 | 18134 | 17495 | 16680 |
| 24 | 16035 | 15903 | 15507 | 14898 | 14587 | 14530 | 14901 | 15652 | 17436 | 18142 | 17461 | 16664 |
| 25 | 16025 | 15904 | 15487 | 14872 | 14581 | 14530 | 14910 | 15689 | 17496 | 18134 | 17419 | 16646 |
| 26 | 16018 | 15909 | 15465 | 14854 | 14571 | 14533 | 14920 | 15729 | 17550 | 18131 | 17392 | 16627 |
| 27 | 16007 | 15910 | 15435 | 14841 | 14547 | 14517 | 14938 | 15790 | 17608 | 18117 | 17375 | 16613 |
| 28 | 16003 | 15908 | 15410 | 14831 | 14529 | 14526 | 14957 | 15853 | 17660 | 18107 | 17347 | 16590 |
| 29 | 16000 | 15907 | 15387 | 14826 | --- | 14522 | 14972 | 15917 | 17703 | 18104 | 17319 | 16574 |
| 30 | 16009 | 15896 | 15364 | 14808 | --- | 14520 | 14995 | 15973 | 17743 | 18099 | 17286 | 16562 |
| 31 | 16018 | --- | 15362 | 14788 | --- | 14527 | --- | 16015 | --- | 18082 | 17256 | --- |
| MAX | 16130 | 16020 | 15876 | 15344 | 14770 | 14548 | 14995 | 16015 | 17743 | 18142 | 18063 | 17224 |
| MIN | 16000 | 15896 | 15362 | 14788 | 14529 | 14483 | 14532 | 15029 | 16053 | 17793 | 17256 | 16562 |
| (†) | 3635.65 | 3634.62 | 3630.05 | 3625.02 | 3622.71 | 3622.69 | 3626.85 | 3635.62 | 3649.65 | 3652.29 | 3645.80 | 3640.17 |
| (‡) | -125,000 | -122,000 | -534,000 | -574,000 | -259,000 | -2,000 | +468,000 | +1,020,000 | +1,728,000 | +339,000 | -826,000 | -694,000 |

CAL YR 1977 ..... ‡ -3,113,000
WTR YR 1978 ..... ‡ +419,000

† Elevation, in feet, at end of month.
‡ Change in contents, in acre-feet.
NOTE.--All figures of contents expressed in thousands.

## 09380000 COLORADO RIVER AT LEES FERRY, AZ
(National stream-quality accounting network and pesticide station)

LOCATION.--Lat 36°51'53", long 111°35'15", in NE¼SE¼ sec.13, T.40 N., R.7 E., Coconino County, Hydrologic Unit 14070006, in Navajo Indian Reservation, on left bank at head of Marble Gorge at Lees Ferry, just upstream from Paria River, 16 mi (26 km) downstream from Glen Canyon Dam, 28 mi (45 km) downstream from Utah-Arizona State line, and 61.5 mi (99.0 km) upstream from Little Colorado River.

DRAINAGE AREA.--111,800 $mi^2$ (289,600 $km^2$), approximately, including 3,959 $mi^2$ (10,254 $km^2$) in Great Divide basin in southern Wyoming which is noncontributing (previously considered part of the Missouri River basin).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1895 to current year. Calendar year estimates and monthly discharge only for some periods, published in WSP 1313.

REVISED RECORDS.--WSP 859: 1921-23. WSP 1313: 1914-21.

GAGE.--Water-stage recorder. Datum of gage is 3,106.16 ft (946.758 m) National Geodetic Vertical Datum of 1929. Prior to Jan. 19, 1923, nonrecording gages or reference points within 400 ft (120 m) of present gage, at different datums.

REMARKS.--Water-discharge record excellent. Flow completely regulated by Lake Powell 16 mi (26 km) upstream since Mar. 13, 1963. Many diversions above station for irrigation, municipal, and industrial use.

AVERAGE DISCHARGE.--51 years (water years 1912-62), 17,850 $ft^3/s$ (505.5 $m^3/s$), 12,923,000 acre-ft/yr (15,900 $hm^3/yr$); 14 years (water years 1965-78), 12,120 $ft^3/s$ (343.2 $m^3/s$), 8,781,000 acre-ft/yr (10,830 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 220,000 $ft^3/s$ (6,230 $m^3/s$) June 18, 1921, gage height, 26.5 ft (8.08 m), from floodmarks, from rating curve extended above 120,000 $ft^3/s$ (3,400 $m^3/s$) on basis of discharge computed for station near Grand Canyon; minimum daily, 700 $ft^3/s$ (19.8 $m^3/s$) Jan. 23, 24, 1963.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge since at least 1868, about 300,000 $ft^3/s$ (8,500 $m^3/s$) July 7, 1884, gage height, 31.5 ft (9.60 m), present site and datum, from floodmark at mouth of Paria River, from rating curve extended above 120,000 $ft^3/s$ (3,400 $m^3/s$) on basis of discharge computed for flood of June 18, 1921, for station near Grand Canyon.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 28,400 $ft^3/s$ (804 $m^3/s$) Jan. 23, gage height, 11.80 ft (3.597 m); minimum daily, 1,260 $ft^3/s$ (35.7 $m^3/s$) Oct. 16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 7420 | 2160 | 14000 | 12700 | 14800 | 16300 | 7260 | 8660 | 14600 | 8510 | 13400 | 20000 |
| 2 | 4150 | 2820 | 9650 | 16400 | 13200 | 16500 | 7270 | 10400 | 14100 | 8250 | 13400 | 16000 |
| 3 | 8540 | 6230 | 4880 | 17100 | 11800 | 17700 | 6910 | 11900 | 15600 | 9970 | 15100 | 16600 |
| 4 | 9430 | 9120 | 3510 | 17800 | 7470 | 13300 | 7450 | 14500 | 9160 | 7940 | 15700 | 18300 |
| 5 | 7680 | 8430 | 7560 | 19700 | 5180 | 12600 | 7900 | 12700 | 15700 | 11100 | 14100 | 21000 |
| 6 | 9480 | 6060 | 9380 | 17900 | 8870 | 13300 | 7700 | 8030 | 15500 | 9100 | 13800 | 23500 |
| 7 | 9600 | 9260 | 12400 | 17100 | 12200 | 10400 | 6760 | 6860 | 11300 | 13000 | 17500 | 23700 |
| 8 | 5920 | 10300 | 14700 | 12600 | 11400 | 9770 | 6660 | 10800 | 14000 | 9290 | 19400 | 23600 |
| 9 | 5210 | 8580 | 14500 | 16800 | 11000 | 8920 | 7470 | 11200 | 15500 | 11800 | 18000 | 17200 |
| 10 | 7790 | 7360 | 7870 | 17600 | 10000 | 12300 | 7490 | 10600 | 10600 | 12900 | 15900 | 18500 |
| 11 | 8650 | 7290 | 8290 | 13200 | 5270 | 7230 | 6750 | 11200 | 7870 | 12600 | 17500 | 19800 |
| 12 | 9230 | 5710 | 12400 | 13200 | 3730 | 7630 | 7060 | 9810 | 11500 | 11800 | 16200 | 17700 |
| 13 | 7740 | 1920 | 13500 | 13200 | 11200 | 8540 | 8420 | 7550 | 13300 | 12900 | 15400 | 16500 |
| 14 | 3660 | 4830 | 14600 | 13900 | 12900 | 7060 | 7780 | 7120 | 16900 | 13600 | 14400 | 17600 |
| 15 | 1560 | 4980 | 12200 | 12500 | 10900 | 5310 | 7220 | 11000 | 16700 | 10000 | 17200 | 14900 |
| 16 | 1260 | 7290 | 13200 | 17300 | 11800 | 5400 | 8610 | 9320 | 12900 | 9860 | 20300 | 11700 |
| 17 | 5530 | 8540 | 14600 | 15300 | 12800 | 4950 | 9650 | 11400 | 9730 | 12500 | 19900 | 9700 |
| 18 | 6690 | 9310 | 14400 | 15300 | 9640 | 5380 | 10200 | 10500 | 6740 | 13600 | 17700 | 11700 |
| 19 | 4930 | 6620 | 18400 | 17600 | 8490 | 2940 | 9370 | 8300 | 12600 | 12600 | 12500 | 11300 |
| 20 | 7040 | 6990 | 19000 | 19600 | 8530 | 8970 | 10300 | 6840 | 9490 | 12800 | 16100 | 13100 |
| 21 | 4770 | 12900 | 18200 | 14700 | 11100 | 8140 | 12500 | 6430 | 14400 | 10700 | 19800 | 14100 |
| 22 | 4620 | 10600 | 18300 | 11200 | 10700 | 8520 | 9040 | 11300 | 16500 | 10200 | 19700 | 13000 |
| 23 | 5000 | 6340 | 16700 | 17800 | 14300 | 8600 | 6930 | 12800 | 17500 | 6400 | 21200 | 13000 |
| 24 | 6940 | 3150 | 15300 | 20200 | 12600 | 8300 | 9210 | 15100 | 9460 | 8950 | 22000 | 13500 |
| 25 | 7380 | 2160 | 12600 | 17000 | 8920 | 8030 | 9550 | 16200 | 6530 | 13700 | 23100 | 16200 |
| 26 | 7860 | 4670 | 14600 | 15800 | 11400 | 7220 | 8010 | 16400 | 13200 | 14000 | 18200 | 16100 |
| 27 | 8560 | 2630 | 18900 | 15200 | 15900 | 11600 | 7780 | 8750 | 13000 | 15700 | 14200 | 15200 |
| 28 | 6540 | 5260 | 17800 | 10200 | 17100 | 10400 | 7150 | 7050 | 12000 | 14300 | 19600 | 17100 |
| 29 | 2300 | 6410 | 17100 | 6660 | --- | 10700 | 11100 | 6600 | 12900 | 10500 | 17700 | 16200 |
| 30 | 2320 | 10700 | 16400 | 15200 | --- | 8580 | 8680 | 13500 | 12900 | 11100 | 17800 | 11500 |
| 31 | 3340 | --- | 10200 | 17000 | --- | 9440 | --- | 13600 | --- | 14100 | 20100 | --- |
| TOTAL | 191140 | 196620 | 415140 | 477760 | 303200 | 292030 | 248180 | 326420 | 382180 | 353770 | 536900 | 488300 |
| MEAN | 6166 | 6554 | 13390 | 15410 | 10830 | 9420 | 8273 | 10530 | 12740 | 11410 | 17320 | 16280 |
| MAX | 9600 | 12900 | 19000 | 20200 | 17100 | 17700 | 12500 | 16400 | 17500 | 15700 | 23100 | 23700 |
| MIN | 1260 | 1920 | 3510 | 6660 | 3730 | 2940 | 6660 | 6430 | 6530 | 6400 | 12500 | 9700 |
| AC-FT | 379100 | 390000 | 823400 | 947600 | 601400 | 579200 | 492300 | 647500 | 758100 | 701700 | 1065000 | 968500 |

CAL YR 1977 TOTAL 3707290 MEAN 10160 MAX 24600 MIN 869 AC-FT 7353000
WTR YR 1978 TOTAL 4211640 MEAN 11540 MAX 23700 MIN 1260 AC-FT 8354000

09380000 COLORADO RIVER AT LEES FERRY, AZ--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--January to July 1926, October 1926 to June 1927, October 1928 to December 1933, November 1942 to October 1945, October 1947 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1964 to current year.
WATER TEMPERATURE: July 1949 to current year.
SUSPENDED-SEDIMENT DISCHARGE: October 1928 to December 1933, November 1942 to September 1944, October 1947 to September 1965.

INSTRUMENTATION.--Specific conductance and water temperature recorder since March 1977.

REMARKS.--Unpublished daily specific conductance measurements for period November 1942 to October 1945, October 1947 to September 1964 available from district office in Tucson, Ariz.

Because of the permanent change in stream characteristics owing to the regulation of flow by Glen Canyon Dam since Mar. 13, 1963, and the subsequent initial filling of Lake Powell, extreme values for the period of daily record now include only those obtained after July 31, 1965, at which time a normal flow release pattern was begun.

COOPERATION.--Pesticide analysis performed by Environmental Protection Agency.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE (August 1965 to current year): Maximum daily, 1,260 micromhos Apr. 20, 21, 1967; minimum daily, 460 micromhos Aug. 10, 1965.
WATER TEMPERATURES (August 1965 to current year): Maximum, 21.0°C on several days during August, September, and October, 1965, 1967, 1968; minimum, 2.0°C on Jan. 29, 30, 1970.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,060 micromhos May 18, 27; minimum daily, 778 micromhos Mar. 8.
WATER TEMPERATURES: Maximum, 13.5°C July 24; minimum, 7.0°C Nov. 20, Dec. 18-20.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | TUR-BID-ITY (JTU) | TUR-BID-ITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) | COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 06... | 1600 | 12500 | 890 | 7.6 | 9.0 | 1 | -- | 10.1 | <1 |
| NOV | | | | | | | | | |
| 04... | 1200 | 10800 | 845 | 7.6 | 9.0 | 1 | -- | 7.8 | <1 |
| DEC | | | | | | | | | |
| 07... | 1230 | 14900 | 870 | 7.8 | 8.0 | 1 | -- | 7.6 | <1 |
| JAN | | | | | | | | | |
| 05... | 1430 | 24000 | 880 | 8.0 | 9.0 | 1 | -- | 7.6 | -- |
| FEB | | | | | | | | | |
| 02... | 1000 | 17800 | 870 | 8.3 | 9.5 | 1 | -- | 8.0 | <1 |
| MAR | | | | | | | | | |
| 08... | 1100 | 12200 | 925 | 7.7 | 8.0 | -- | -- | 7.6 | <1 |
| APR | | | | | | | | | |
| 04... | 1600 | 7950 | 980 | -- | 9.5 | 0 | -- | 7.0 | <1 |
| MAY | | | | | | | | | |
| 03... | 1000 | 16000 | 980 | 7.8 | 9.0 | 0 | -- | 8.1 | K1 |
| JUN | | | | | | | | | |
| 06... | 1400 | 21000 | 1000 | 7.7 | 10.0 | -- | .20 | 7.1 | K1 |
| JUL | | | | | | | | | |
| 05... | 1700 | 15000 | 965 | 8.1 | 10.0 | -- | .60 | 7.5 | K4 |
| AUG | | | | | | | | | |
| 17... | 1300 | 11900 | 990 | 7.9 | 10.0 | -- | 1.1 | 7.9 | <1 |
| SEP | | | | | | | | | |
| 06... | 1400 | 27100 | 960 | 7.8 | 12.0 | -- | 1.5 | 8.6 | <1 |

< Actual value is known to be less than value shown.
K Based on non-ideal colony count.

09380000 COLORADO RIVER AT LEES FERRY, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) | HARDNESS (MG/L AS CACO3) | HARDNESS, NONCARBONATE (MG/L CACO3) | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) | SODIUM ADSORPTION RATIO | POTASSIUM, DISSOLVED (MG/L AS K) | BICARBONATE (MG/L AS HCO3) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 06... | K2 | 270 | 150 | 65 | 25 | 73 | 2.0 | 3.5 | 160 |
| NOV | | | | | | | | | |
| 04... | K2 | 280 | 150 | 71 | 24 | 77 | 2.0 | 3.6 | 160 |
| DEC | | | | | | | | | |
| 07... | -- | 310 | 170 | 81 | 27 | 76 | 1.9 | 3.8 | 170 |
| JAN | | | | | | | | | |
| 05... | 60 | 280 | 160 | 68 | 27 | 77 | 2.0 | 4.0 | 150 |
| FEB | | | | | | | | | |
| 02... | K1 | 290 | 150 | 70 | 27 | 77 | 2.0 | 3.8 | 160 |
| MAR | | | | | | | | | |
| 08... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| APR | | | | | | | | | |
| 04... | K19 | 350 | 210 | 90 | 30 | 90 | 2.1 | 4.3 | 170 |
| MAY | | | | | | | | | |
| 03... | 320 | 320 | 180 | 79 | 29 | 84 | 2.1 | 4.3 | 170 |
| JUN | | | | | | | | | |
| 06... | K340 | 340 | 200 | 88 | 29 | 86 | 2.0 | 4.2 | -- |
| JUL | | | | | | | | | |
| 05... | K11 | 310 | 180 | 78 | 29 | 91 | 2.2 | 4.4 | -- |
| AUG | | | | | | | | | |
| 17... | K1 | 310 | 180 | 78 | 28 | 89 | 2.2 | 4.3 | -- |
| SEP | | | | | | | | | |
| 06... | K6 | 300 | 170 | 79 | 26 | 87 | 2.2 | 4.0 | -- |

| DATE | CARBONATE (MG/L AS CO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | SOLIDS, DISSOLVED (TONS PER AC-FT) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 06... | 0 | 230 | 49 | .3 | 8.0 | 543 | 533 | .74 |
| NOV | | | | | | | | |
| 04... | 0 | 230 | 52 | .3 | 8.1 | 566 | 545 | .77 |
| DEC | | | | | | | | |
| 07... | 0 | 260 | 52 | .1 | 8.2 | 590 | 592 | .80 |
| JAN | | | | | | | | |
| 05... | 0 | 260 | 53 | .5 | 7.9 | 575 | 571 | .78 |
| FEB | | | | | | | | |
| 02... | 0 | 240 | 56 | .3 | 7.8 | 575 | 561 | .78 |
| MAR | | | | | | | | |
| 08... | -- | -- | -- | -- | -- | -- | -- | -- |
| APR | | | | | | | | |
| 04... | -- | 280 | 69 | .2 | 7.9 | 665 | 655 | .90 |
| MAY | | | | | | | | |
| 03... | 0 | 260 | 65 | .3 | 7.9 | 642 | 614 | .87 |
| JUN | | | | | | | | |
| 06... | -- | 270 | 62 | .3 | 8.2 | 657 | 632 | .89 |
| JUL | | | | | | | | |
| 05... | -- | 270 | 61 | .4 | 6.4 | 644 | 618 | .88 |
| AUG | | | | | | | | |
| 17... | -- | 270 | 63 | .3 | 7.6 | 655 | 619 | .89 |
| SEP | | | | | | | | |
| 06... | -- | 260 | 57 | .3 | 7.6 | 634 | 599 | .86 |

K Based on non-ideal colony count.

09380000 COLORADO RIVER AT LEES FERRY, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN, AMMONIA TOTAL (MG/L AS N) | NITROGEN, ORGANIC TOTAL (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | NITROGEN, NH4 + ORG. SUSP. TOTAL (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N) | NITROGEN, TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | PHOSPHORUS, DISSOLVED (MG/L AS P) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 06... | .00 | .01 | -- | -- | -- | .63 | -- | .00 | .01 |
| NOV | | | | | | | | | |
| 04... | .47 | .00 | -- | -- | -- | .26 | -- | .00 | .00 |
| DEC | | | | | | | | | |
| 07... | .62 | .07 | -- | -- | -- | .35 | -- | .00 | .00 |
| JAN | | | | | | | | | |
| 05... | .48 | .04 | -- | -- | -- | .38 | -- | .01 | .01 |
| FEB | | | | | | | | | |
| 02... | .39 | .01 | .09 | .10 | .01 | .09 | .49 | .02 | .01 |
| APR | | | | | | | | | |
| 04... | .59 | .00 | .32 | .32 | .07 | .25 | .91 | .00 | .00 |
| MAY | | | | | | | | | |
| 03... | .55 | .00 | .25 | .25 | .01 | .24 | .80 | .00 | .00 |
| JUN | | | | | | | | | |
| 06... | .59 | .01 | .44 | .45 | -- | -- | 1.0 | .07 | .02 |
| JUL | | | | | | | | | |
| 05... | .54 | .00 | .63 | .63 | .03 | .60 | 1.2 | .01 | .00 |
| AUG | | | | | | | | | |
| 17... | .56 | .00 | .48 | .48 | .00 | .48 | 1.0 | .01 | .01 |
| SEP | | | | | | | | | |
| 06... | .51 | .00 | .36 | .36 | .00 | .37 | .87 | .01 | .01 |

| DATE | ARSENIC TOTAL (UG/L AS AS) | ARSENIC DISSOLVED (UG/L AS AS) | BARIUM, TOTAL RECOVERABLE (UG/L AS BA) | BARIUM, DISSOLVED (UG/L AS BA) | BORON, TOTAL RECOVERABLE (UG/L AS B) | BORON, DISSOLVED (UG/L AS B) | CADMIUM TOTAL RECOVERABLE (UG/L AS CD) | CADMIUM DISSOLVED (UG/L AS CD) | CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) | CHROMIUM, DISSOLVED (UG/L AS CR) |
|---|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | | |
| 04... | 2 | 2 | 500 | 200 | 110 | 90 | 10 | 1 | 4 | 12 |
| JAN | | | | | | | | | | |
| 05... | -- | -- | -- | -- | -- | 100 | -- | -- | -- | -- |
| FEB | | | | | | | | | | |
| 02... | 2 | 2 | 100 | 100 | 120 | 100 | 2 | 1 | 0 | 0 |
| MAY | | | | | | | | | | |
| 03... | 1 | 1 | 200 | 200 | -- | -- | 0 | 0 | 0 | 10 |
| JUL | | | | | | | | | | |
| 05... | -- | -- | -- | -- | -- | 120 | -- | -- | -- | -- |
| AUG | | | | | | | | | | |
| 17... | 2 | 2 | 200 | 100 | -- | -- | 4 | 4 | 0 | 0 |

| DATE | COBALT, TOTAL RECOVERABLE (UG/L AS CO) | COBALT, DISSOLVED (UG/L AS CO) | COPPER, TOTAL RECOVERABLE (UG/L AS CU) | COPPER, DISSOLVED (UG/L AS CU) | IRON, TOTAL RECOVERABLE (UG/L AS FE) | IRON, DISSOLVED (UG/L AS FE) | LEAD, TOTAL RECOVERABLE (UG/L AS PB) | LEAD, DISSOLVED (UG/L AS PB) | MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) |
|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | |
| 04... | <50 | 0 | <10 | 2 | 50 | 10 | <100 | 4 | 0 |
| JAN | | | | | | | | | |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | | | | |
| 02... | 0 | 0 | 3 | 3 | 120 | 20 | 0 | 0 | 0 |
| MAY | | | | | | | | | |
| 03... | 0 | 0 | 2 | 1 | 60 | 10 | 4 | 1 | 10 |
| JUL | | | | | | | | | |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | |
| 17... | 1 | 1 | 12 | 5 | 10 | <10 | 7 | 0 | 10 |

< Actual value is known to be less than value shown.

09380000 COLORADO RIVER AT LEES FERRY, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | MANGANESE, DISSOLVED (UG/L AS MN) | MERCURY TOTAL RECOVERABLE (UG/L AS HG) | MERCURY DISSOLVED (UG/L AS HG) | SELENIUM, TOTAL (UG/L AS SE) | SELENIUM, DISSOLVED (UG/L AS SE) | SILVER, TOTAL RECOVERABLE (UG/L AS AG) | SILVER, DISSOLVED (UG/L AS AG) | ZINC, TOTAL RECOVERABLE (UG/L AS ZN) | ZINC, DISSOLVED (UG/L AS ZN) |
|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | |
| 04... | 4 | .0 | .0 | 5 | 4 | <10 | 0 | 10 | 20 |
| JAN | | | | | | | | | |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | | | | |
| 02... | 10 | .1 | .0 | 4 | 5 | 0 | 0 | 30 | 20 |
| MAY | | | | | | | | | |
| 03... | 0 | .0 | .0 | 4 | 0 | 0 | 0 | 20 | 20 |
| JUL | | | | | | | | | |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | |
| 17... | <1 | .1 | .3 | 4 | 3 | 0 | 0 | 20 | 20 |

| DATE | CARBON, ORGANIC TOTAL (MG/L AS C) | CARBON, ORGANIC DISSOLVED (MG/L AS C) | CARBON, ORGANIC SUSPENDED TOTAL (MG/L AS C) | PCB, TOTAL (UG/L) | PCB, TOTAL IN BOTTOM MATERIAL (UG/KG) | ALDRIN, TOTAL (UG/L) | ALDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) | ATRAZINE, TOTAL (UG/L) | ATRAZINE, TOTAL IN BOTTOM MATERIAL (UG/KG) | CHLORDANE, TOTAL (UG/L) | CHLORDANE, TOTAL IN BOTTOM MATERIAL (UG/KG) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | | | |
| 04... | 2.7 | -- | -- | ND | ND | ND | ND | -- | ND | ND | ND |
| DEC | | | | | | | | | | | |
| 07... | 3.0 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JAN | | | | | | | | | | | |
| 05... | 3.6 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | | | | | | |
| 02... | -- | -- | -- | ND | -- | ND | -- | ND | -- | ND | -- |
| MAY | | | | | | | | | | | |
| 03... | -- | 8.9 | .2 | ND | ND | ND | ND | ND | -- | ND | ND |
| JUN | | | | | | | | | | | |
| 06... | 3.2 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | | | |
| 05... | 3.1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | | | |
| 17... | -- | -- | -- | ND | -- | ND | -- | ND | -- | ND | -- |
| SEP | | | | | | | | | | | |
| 06... | 3.4 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

| DATE | DDD, TOTAL (UG/L) | DDD, TOTAL IN BOTTOM MATERIAL (UG/KG) | DDE, TOTAL (UG/L) | DDE, TOTAL IN BOTTOM MATERIAL (UG/KG) | DDT, TOTAL (UG/L) | DDT, TOTAL IN BOTTOM MATERIAL (UG/KG) | DIAZINON, TOTAL (UG/L) | DIAZINON, TOTAL IN BOTTOM MATERIAL (UG/KG) | DIELDRIN TOTAL (UG/L) | DIELDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) | ENDRIN, TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | | | |
| 04... | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| DEC | | | | | | | | | | | |
| 07... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JAN | | | | | | | | | | | |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | | | | | | |
| 02... | ND | -- | ND | -- | ND | -- | ND | -- | ND | -- | ND |
| MAY | | | | | | | | | | | |
| 03... | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| JUN | | | | | | | | | | | |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | | | |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | | | |
| 17... | ND | -- | ND | -- | ND | -- | ND | -- | ND | -- | ND |
| SEP | | | | | | | | | | | |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

< Actual value is known to be less than value shown.
ND Material specifically analyzed for but not detected.

09380000 COLORADO RIVER AT LEES FERRY, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | ENDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) | ETHION, TOTAL (UG/L) | ETHION, TOTAL IN BOTTOM MATERIAL (UG/KG) | HEPTACHLOR, TOTAL (UG/L) | HEPTACHLOR, TOTAL IN BOTTOM MATERIAL (UG/KG) | HEPTACHLOR EPOXIDE TOTAL (UG/L) | HEPTACHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG) | LINDANE TOTAL (UG/L) | LINDANE TOTAL IN BOTTOM MATERIAL (UG/KG) | MALATHION, TOTAL (UG/L) | MALATHION, TOTAL IN BOTTOM MATERIAL (UG/KG) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | | | |
| 04... | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| DEC | | | | | | | | | | | |
| 07... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JAN | | | | | | | | | | | |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | | | | | | |
| 02... | -- | ND | -- | ND | -- | ND | -- | ND | -- | ND | -- |
| MAY | | | | | | | | | | | |
| 03... | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| JUN | | | | | | | | | | | |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | | | |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | | | |
| 17... | -- | ND | -- | ND | -- | ND | -- | ND | -- | ND | -- |
| SEP | | | | | | | | | | | |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

| DATE | METHOXYCHLOR, TOTAL (UG/L) | METHOXYCHLOR, TOT. IN BOTTOM MATL. (UG/KG) | METHYL PARATHION, TOTAL (UG/L) | METHYL PARATHION, TOT. IN BOTTOM MATL. (UG/KG) | METHYL TRITHION, TOTAL (UG/L) | METHYL TRITHION, TOT. IN BOTTOM MATL. (UG/KG) | PARATHION, TOTAL (UG/L) | PARATHION, TOTAL IN BOTTOM MATERIAL (UG/KG) | SIMAZINE TOTAL COULSON COND. (UG/L) | SIMAZINE IN BOTTOM MATERIAL (UG/KG DRY SOLIDS) |
|---|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | | |
| 04... | ND | ND | ND | ND | ND | ND | ND | ND | -- | ND |
| DEC | | | | | | | | | | |
| 07... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JAN | | | | | | | | | | |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | | | | | |
| 02... | ND | -- | ND | -- | ND | -- | ND | -- | ND | -- |
| MAY | | | | | | | | | | |
| 03... | ND | ND | ND | ND | ND | ND | ND | ND | ND | -- |
| JUN | | | | | | | | | | |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | | |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | | |
| 17... | ND | -- | ND | -- | ND | -- | ND | -- | ND | -- |
| SEP | | | | | | | | | | |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

ND Material specifically analyzed for but not detected.

09380000 COLORADO RIVER AT LEES FERRY, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TOXAPHENE, TOTAL (UG/L) | TOXAPHENE, TOTAL IN BOTTOM MATERIAL (UG/KG) | TOTAL TRITHION (UG/L) | TRITHION, TOTAL IN BOTTOM MATERIAL (UG/KG) | 2,4-D, TOTAL (UG/L) | 2,4-D, TOTAL IN BOTTOM MATERIAL (UG/KG) | 2,4,5-T TOTAL (UG/L) | 2,4,5-T TOTAL IN BOTTOM MATERIAL (UG/KG) | SILVEX, TOTAL (UG/L) | SILVEX, TOTAL IN BOTTOM MATERIAL (UG/KG) |
|---|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | | |
| 04... | ND | ND | ND | ND | -- | ND | -- | ND | -- | ND |
| DEC | | | | | | | | | | |
| 07... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JAN | | | | | | | | | | |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | | | | | |
| 02... | ND | -- | ND | -- | ND | -- | ND | -- | ND | -- |
| MAY | | | | | | | | | | |
| 03... | ND | ND | ND | ND | -- | -- | -- | -- | -- | -- |
| JUN | | | | | | | | | | |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | | |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | | |
| 17... | ND | -- | ND | -- | -- | -- | -- | -- | -- | -- |
| SEP | | | | | | | | | | |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

| DATE | TIME | STREAM-FLOW (CFS) | TEMPERATURE (DEG C) | SEDIMENT, SUSPENDED (MG/L) | SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM | SEDIMENT DISCHARGE, SUSPENDED (T/DAY) | LENGTH OF EXPOSURE (DAYS) | PHYTOPLANKTON, TOTAL (CELLS PER ML) | PERIPHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M | PERIPHYTON BIOMASS ASH WEIGHT G/SQ M | CHLOR-A PERIPHYTON CHROMOGRAPHIC FLUOROM (MG/M2) | CHLOR-B PERIPHYTON CHROMOGRAPHIC FLUORUM (MG/M2) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 06... | 1600 | 9480 | 9.0 | 9 | 70 | 230 | -- | 4000 | -- | -- | -- | -- |
| 14... | 0800 | 3660 | -- | 2 | -- | 20 | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | | | | | | | |
| 04... | 1200 | 9120 | 9.0 | 8 | 52 | 197 | 29 | 170 | .157 | .079 | .000 | .000 |
| 17... | 1530 | 8540 | -- | 9 | -- | 208 | -- | -- | -- | -- | -- | -- |
| DEC | | | | | | | | | | | | |
| 07... | 1230 | 12400 | 8.0 | 5 | -- | 167 | -- | -- | -- | -- | -- | -- |
| 15... | 1230 | 12200 | -- | 5 | 49 | 165 | -- | -- | -- | -- | -- | -- |
| JAN | | | | | | | | | | | | |
| 05... | 1430 | 19700 | 9.0 | 12 | 23 | 638 | -- | -- | -- | -- | -- | -- |
| 12... | 1415 | 13200 | -- | 7 | -- | 249 | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | | | | | | | |
| 02... | 1000 | 13200 | 9.5 | 18 | 35 | 642 | -- | -- | -- | -- | -- | -- |
| 16... | 0900 | 11800 | -- | 1 | -- | 32 | -- | -- | -- | -- | -- | -- |
| MAR | | | | | | | | | | | | |
| 08... | 1100 | 9770 | 8.0 | 17 | 47 | 448 | -- | 95 | -- | -- | -- | -- |
| MAY | | | | | | | | | | | | |
| 03... | 1000 | 11900 | 9.0 | 8 | 43 | 257 | -- | 190 | -- | -- | -- | -- |
| 15... | 1430 | 11000 | -- | 13 | 78 | 386 | -- | -- | -- | -- | -- | -- |
| JUN | | | | | | | | | | | | |
| 06... | 1400 | 15500 | 10.0 | 14 | 79 | 586 | 34 | -- | 1.89 | .866 | .270 | .000 |
| 19... | 1500 | 12600 | -- | 25 | -- | 850 | -- | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | | | | |
| 05... | 1700 | 11100 | 10.0 | 16 | 49 | 480 | -- | 88 | -- | -- | -- | -- |
| 31... | 1400 | 14100 | -- | 14 | 75 | 533 | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | | | | |
| 17... | 1300 | 19900 | 10.0 | 31 | 8 | 1670 | -- | 590 | 1.02 | .551 | .400 | .060 |
| SEP | | | | | | | | | | | | |
| 06... | 1400 | 23500 | 12.0 | 18 | 24 | 1140 | -- | 1700 | -- | -- | -- | -- |
| 18... | 1330 | 11700 | -- | 5 | -- | 158 | -- | -- | -- | -- | -- | -- |

ND Material specifically analyzed for but not detected.

09380000 COLORADO RIVER AT LEES FERRY, AZ--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DAY | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | OCTOBER | | NOVEMBER | | DECEMBER | | JANUARY | | FEBRUARY | | MARCH | |
| 1 | 11.0 | 9.5 | 10.0 | 9.0 | 8.0 | 7.5 | 10.0 | 8.5 | 9.5 | 9.5 | 8.5 | 8.0 |
| 2 | 11.0 | 9.5 | 9.5 | 8.5 | 8.5 | 7.5 | 10.0 | 8.5 | 9.5 | 9.5 | 8.5 | 8.0 |
| 3 | 11.5 | 10.5 | 9.5 | 8.5 | 8.0 | 7.5 | 10.0 | 8.5 | 9.0 | 9.5 | 8.5 | 8.0 |
| 4 | 11.5 | 10.0 | 9.5 | 8.5 | 8.5 | 8.0 | 10.0 | 8.5 | 9.0 | 9.5 | 8.5 | 8.0 |
| 5 | 11.0 | 10.0 | 9.5 | 9.0 | 8.5 | 8.0 | 10.5 | 9.0 | 9.0 | 9.5 | 8.5 | 8.0 |
| 6 | 11.0 | 10.0 | 9.5 | 9.0 | 8.0 | 7.5 | 10.5 | 8.5 | 9.0 | 9.5 | 8.5 | 8.0 |
| 7 | 11.0 | 10.0 | 9.5 | 9.0 | 8.5 | 8.0 | 10.0 | 8.5 | 9.0 | 9.5 | 8.5 | 8.0 |
| 8 | 11.0 | 10.0 | 9.0 | 8.5 | 8.0 | 8.0 | 10.0 | 8.5 | 9.5 | 9.5 | 8.5 | 8.0 |
| 9 | 11.0 | 10.0 | 9.0 | 8.0 | 8.0 | 7.5 | 9.5 | 8.5 | 9.0 | 9.5 | 8.5 | 7.5 |
| 10 | 11.0 | 10.0 | 9.0 | 8.0 | 8.0 | 7.5 | 9.5 | 8.5 | 9.0 | 9.0 | 8.5 | 8.0 |
| 11 | 10.5 | 9.5 | 9.0 | 8.5 | 8.0 | 7.5 | 9.5 | 9.0 | 9.0 | 8.5 | 8.5 | 8.0 |
| 12 | 10.5 | 9.5 | 9.5 | 8.5 | 8.0 | 7.5 | 9.5 | 9.0 | 9.0 | 7.5 | 8.5 | 8.0 |
| 13 | 10.5 | 9.5 | 9.5 | 8.5 | 8.0 | 7.5 | 9.5 | 9.0 | 9.0 | 8.0 | 8.5 | 8.0 |
| 14 | 11.0 | 9.5 | 9.5 | 8.5 | 8.0 | 8.0 | 9.5 | 9.0 | 9.0 | 8.5 | 8.5 | 8.0 |
| 15 | 11.5 | 10.0 | 9.5 | 9.0 | 8.0 | 7.5 | 9.5 | 9.0 | 9.0 | 8.5 | 8.5 | 8.0 |
| 16 | 11.5 | 10.5 | 9.0 | 8.5 | 8.0 | 7.5 | 9.0 | 9.0 | 9.0 | 7.5 | 8.5 | 8.5 |
| 17 | 11.5 | 10.0 | 9.0 | 8.5 | 8.0 | 7.5 | 9.5 | 9.0 | 8.5 | 7.5 | 9.0 | 8.5 |
| 18 | 10.5 | 9.5 | 9.0 | 8.5 | 8.5 | 7.0 | 9.0 | 8.5 | 8.5 | 7.5 | 9.0 | 8.5 |
| 19 | 10.5 | 9.5 | 8.5 | 8.0 | 8.5 | 7.0 | 9.0 | 9.0 | 9.0 | 8.0 | 9.0 | 8.5 |
| 20 | 10.5 | 9.5 | 8.0 | 7.0 | 8.5 | 7.0 | 9.0 | 9.0 | 9.0 | 8.0 | 9.0 | 8.0 |
| 21 | 10.0 | 9.5 | 8.5 | 8.0 | 8.5 | 8.5 | 9.0 | 9.0 | 9.0 | 8.5 | 9.0 | 8.0 |
| 22 | 10.5 | 9.5 | 8.5 | 8.0 | 9.0 | 8.5 | 9.0 | 8.5 | 9.0 | 8.5 | 9.0 | 8.0 |
| 23 | 10.0 | 9.5 | 8.5 | 8.0 | 9.0 | 8.5 | 9.0 | 8.5 | 9.0 | 8.0 | 9.0 | 8.0 |
| 24 | 10.0 | 9.5 | 9.0 | 8.0 | 9.5 | 9.0 | 8.5 | 8.0 | 9.0 | 8.5 | 9.0 | 8.0 |
| 25 | 10.0 | 9.0 | 8.5 | 8.0 | 9.0 | 8.5 | 9.0 | 7.5 | 9.0 | 8.5 | 9.0 | 8.0 |
| 26 | 10.0 | 9.0 | 8.5 | 8.0 | 9.0 | 8.5 | 9.0 | 8.5 | 9.0 | 8.5 | 9.0 | 8.5 |
| 27 | 10.0 | 9.0 | 8.5 | 8.0 | 9.0 | 8.5 | 9.5 | 9.0 | 9.0 | 8.5 | 9.0 | 8.5 |
| 28 | 10.0 | 9.0 | 8.5 | 8.0 | 9.0 | 8.5 | 9.5 | 9.0 | 8.5 | 8.0 | 9.0 | 8.5 |
| 29 | 10.5 | 9.5 | 8.0 | 8.0 | 9.0 | 8.5 | 9.5 | 9.0 | --- | --- | 9.0 | 8.0 |
| 30 | 10.5 | 9.5 | 8.5 | 7.5 | 9.5 | 9.0 | 9.5 | 9.0 | --- | --- | 9.0 | 8.5 |
| 31 | 10.0 | 9.0 | --- | --- | 9.5 | 9.0 | 9.5 | 9.5 | --- | --- | --- | --- |
| MONTH | 11.5 | 9.0 | 10.0 | 7.0 | 9.5 | 7.0 | 10.5 | 7.5 | 9.5 | 7.5 | 9.0 | 7.5 |

| DAY | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | APRIL | | MAY | | JUNE | | JULY | | AUGUST | | SEPTEMBER | |
| 1 | --- | --- | 9.5 | 9.0 | 11.5 | 9.5 | --- | --- | 13.0 | 11.0 | 12.0 | 11.0 |
| 2 | --- | --- | 10.0 | 8.5 | 11.5 | 9.5 | --- | --- | 12.5 | 11.0 | 12.5 | 11.5 |
| 3 | --- | --- | 10.0 | 8.5 | 11.5 | 9.5 | --- | --- | 12.5 | 11.0 | 12.0 | 11.0 |
| 4 | 9.5 | 8.0 | 9.5 | 8.5 | 11.5 | 9.5 | --- | --- | 12.5 | 10.5 | 12.0 | 11.0 |
| 5 | 9.5 | 8.5 | 10.0 | 9.0 | 11.0 | 9.5 | --- | --- | 13.0 | 11.0 | 12.5 | 10.5 |
| 6 | 9.5 | 9.0 | 9.5 | 8.5 | --- | --- | --- | --- | 13.0 | 11.0 | --- | --- |
| 7 | 10.0 | 8.5 | 9.5 | 8.5 | --- | --- | 12.5 | 10.5 | 12.5 | 11.0 | 12.5 | 11.0 |
| 8 | 9.0 | 8.5 | 10.5 | 9.0 | --- | --- | 12.5 | 11.0 | 12.5 | 11.0 | 12.5 | 11.5 |
| 9 | 9.0 | 8.5 | 10.5 | 9.0 | --- | --- | 12.5 | 11.0 | 12.5 | 11.0 | 12.5 | 11.0 |
| 10 | 10.0 | 9.0 | 10.5 | 9.0 | --- | --- | 12.5 | 11.0 | 12.5 | 11.0 | 12.5 | 11.5 |
| 11 | 10.0 | 9.0 | 10.5 | 9.0 | --- | --- | 13.0 | 11.0 | 12.5 | 11.0 | 12.5 | 11.0 |
| 12 | 9.5 | 9.0 | 11.0 | 9.0 | --- | --- | 12.5 | 10.5 | 12.0 | 10.5 | 12.5 | 10.5 |
| 13 | 10.0 | 9.0 | 11.0 | 9.0 | --- | --- | 12.5 | 10.5 | 12.0 | 10.5 | 13.0 | 11.5 |
| 14 | 10.0 | 8.5 | 11.0 | 9.0 | --- | --- | 12.5 | 11.0 | 12.0 | 10.5 | 12.0 | 11.5 |
| 15 | 10.0 | 9.0 | 10.5 | 9.5 | --- | --- | 13.0 | 11.0 | 12.0 | 11.5 | 12.5 | 11.5 |
| 16 | 9.5 | 9.0 | 10.5 | 9.0 | --- | --- | 12.5 | 11.0 | 13.0 | 10.5 | 12.5 | 11.5 |
| 17 | 9.5 | 8.5 | 10.5 | 9.0 | --- | --- | 12.0 | 11.5 | 12.0 | 11.5 | 13.0 | 12.0 |
| 18 | 10.0 | 8.5 | 10.5 | 9.0 | --- | --- | 12.0 | 10.5 | 12.0 | 10.5 | 12.0 | 11.5 |
| 19 | 9.5 | 8.5 | 11.0 | 9.0 | --- | --- | 13.0 | 11.0 | 12.5 | 10.5 | 12.0 | 11.0 |
| 20 | 10.0 | 8.5 | 11.0 | 9.5 | --- | --- | 13.0 | 11.0 | 12.5 | 11.5 | --- | --- |
| 21 | 10.0 | 8.5 | 11.0 | 9.5 | --- | --- | 13.0 | 11.0 | 12.0 | 11.0 | --- | --- |
| 22 | 10.0 | 8.5 | 11.0 | 9.5 | --- | --- | 13.0 | 11.0 | 12.5 | 10.5 | --- | --- |
| 23 | 10.5 | 9.0 | 11.0 | 9.5 | --- | --- | 13.0 | 11.0 | 12.0 | 10.5 | --- | --- |
| 24 | 10.0 | 9.0 | 10.5 | 9.0 | --- | --- | 13.5 | 12.0 | 12.5 | 10.5 | --- | --- |
| 25 | 10.0 | 9.0 | 10.5 | 9.0 | --- | --- | 12.5 | 11.5 | 12.0 | 11.0 | --- | --- |
| 26 | 10.5 | 9.0 | 10.0 | 9.0 | --- | --- | 12.5 | 11.0 | 12.5 | 11.0 | --- | --- |
| 27 | 10.0 | 9.0 | 11.0 | 9.0 | --- | --- | 12.5 | 11.0 | 12.5 | 10.5 | --- | --- |
| 28 | 10.5 | 9.0 | 11.0 | 9.0 | --- | --- | 12.5 | 11.0 | 12.0 | 11.0 | --- | --- |
| 29 | 10.0 | 9.0 | 11.0 | 9.5 | --- | --- | 13.0 | 11.0 | 12.5 | 11.0 | --- | --- |
| 30 | 10.0 | 9.0 | 11.5 | 10.0 | --- | --- | 13.0 | 11.0 | 12.5 | 11.0 | --- | --- |
| 31 | --- | --- | 11.5 | 9.0 | --- | --- | 13.0 | 11.0 | 12.0 | 11.0 | --- | --- |
| MONTH | 10.5 | 8.0 | 11.5 | 8.5 | 11.5 | 9.5 | 13.5 | 10.5 | 13.0 | 10.5 | 13.0 | 10.5 |
| YEAR | 13.5 | 7.0 | | | | | | | | | | |

09380000 COLORADO RIVER AT LEES FERRY, AZ--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DAY | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | OCTOBER | | NOVEMBER | | DECEMBER | | JANUARY | | FEBRUARY | | MARCH | |
| 1 | 883 | 837 | 856 | 833 | 908 | 877 | 898 | 880 | 886 | 871 | 921 | 893 |
| 2 | 884 | 838 | 848 | 827 | 911 | 888 | 899 | 885 | 897 | 870 | 920 | 908 |
| 3 | 854 | 814 | 848 | 828 | 917 | 881 | 904 | 886 | 878 | 866 | 920 | 905 |
| 4 | 881 | 845 | 842 | 801 | 918 | 885 | 915 | 897 | 884 | 886 | 934 | 891 |
| 5 | 890 | 837 | 852 | 812 | 934 | 892 | 907 | 874 | 880 | 882 | 943 | 915 |
| 6 | 886 | 887 | 839 | 802 | 948 | 910 | 893 | 881 | 885 | 881 | 932 | 879 |
| 7 | 888 | 855 | 850 | 819 | 909 | 830 | 886 | 875 | 899 | 889 | 946 | 876 |
| 8 | 878 | 839 | 845 | 819 | 887 | 866 | 904 | 874 | 893 | 875 | 794 | 778 |
| 9 | 878 | 827 | 855 | 822 | 869 | 857 | 903 | 885 | 892 | 874 | 945 | 885 |
| 10 | 855 | 831 | 834 | 811 | 878 | 842 | 908 | 885 | 916 | 879 | 941 | 916 |
| 11 | 873 | 841 | 856 | 817 | 877 | 841 | 908 | 869 | 919 | 869 | 937 | 907 |
| 12 | 900 | 846 | 859 | 822 | 876 | 849 | 908 | 890 | 937 | 869 | 922 | 901 |
| 13 | 869 | 840 | 838 | 820 | 878 | 851 | 901 | 886 | 918 | 883 | 945 | 897 |
| 14 | 873 | 840 | 845 | 819 | 874 | 847 | 894 | 885 | 917 | 885 | 965 | 904 |
| 15 | 861 | 834 | 867 | 836 | 870 | 849 | 897 | 891 | 912 | 884 | 961 | 897 |
| 16 | 868 | 829 | 885 | 846 | 871 | 840 | 908 | 887 | 922 | 878 | 945 | 907 |
| 17 | 858 | 833 | 883 | 847 | 873 | 849 | 926 | 829 | 945 | 874 | 980 | 904 |
| 18 | 883 | 831 | 886 | 849 | 881 | 860 | 916 | 841 | 923 | 894 | 961 | 891 |
| 19 | 875 | 824 | 892 | 868 | 889 | 865 | 897 | 888 | 913 | 884 | 949 | 904 |
| 20 | 875 | 834 | 945 | 845 | 878 | 861 | 908 | 887 | 919 | 875 | 965 | 910 |
| 21 | 898 | 834 | 928 | 847 | 877 | 863 | 914 | 890 | 908 | 883 | 969 | 928 |
| 22 | 863 | 838 | 893 | 860 | 888 | 855 | 920 | 886 | 904 | 873 | 961 | 922 |
| 23 | 882 | 837 | 899 | 859 | 872 | 857 | 912 | 888 | 907 | 879 | 973 | 928 |
| 24 | 870 | 831 | 902 | 849 | 883 | 883 | 928 | 837 | 910 | 875 | 995 | 928 |
| 25 | 870 | 835 | 885 | 850 | 882 | 858 | 943 | 866 | 912 | 880 | 986 | 934 |
| 26 | 869 | 836 | 907 | 850 | 890 | 863 | 910 | 856 | 904 | 885 | 983 | 934 |
| 27 | 884 | 846 | 933 | 902 | 904 | 880 | 910 | 835 | 911 | 885 | 969 | 925 |
| 28 | 884 | 846 | 912 | 874 | 902 | 878 | 908 | 882 | 910 | 894 | 973 | 928 |
| 29 | 865 | 842 | 903 | 870 | 904 | 892 | 906 | 870 | --- | --- | 980 | 941 |
| 30 | 845 | 821 | 906 | 873 | 909 | 885 | 893 | 878 | --- | --- | 983 | 941 |
| 31 | 845 | 829 | --- | --- | 899 | 872 | 889 | 877 | --- | --- | --- | --- |
| MONTH | 900 | 814 | 945 | 801 | 948 | 830 | 943 | 829 | 945 | 861 | 995 | 778 |

| DAY | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | APRIL | | MAY | | JUNE | | JULY | | AUGUST | | SEPTEMBER | |
| 1 | --- | --- | 1010 | 956 | 1020 | 976 | --- | --- | 993 | 965 | 977 | 962 |
| 2 | --- | --- | 1030 | 972 | 998 | 953 | --- | --- | 993 | 959 | 969 | 953 |
| 3 | --- | --- | 1000 | 974 | 1000 | 988 | --- | --- | 989 | 956 | 973 | 950 |
| 4 | --- | --- | 1030 | 986 | 1000 | 972 | --- | --- | 1000 | 959 | 973 | 947 |
| 5 | 968 | 902 | 1050 | 978 | 1000 | 968 | --- | --- | 997 | 965 | 977 | 956 |
| 6 | 937 | 905 | 1050 | 978 | --- | --- | --- | --- | 989 | 932 | --- | --- |
| 7 | 980 | 904 | 1020 | 986 | --- | --- | 981 | 944 | 993 | 947 | 989 | 963 |
| 8 | 982 | 932 | 1020 | 990 | --- | --- | 1010 | 959 | 989 | 956 | 985 | 959 |
| 9 | 960 | 892 | 1010 | 982 | --- | --- | 997 | 959 | 989 | 959 | 989 | 935 |
| 10 | 967 | 892 | 998 | 974 | --- | --- | 993 | 965 | 989 | 953 | 981 | 953 |
| 11 | 986 | 926 | 1020 | 974 | --- | --- | 977 | 956 | 969 | 953 | 997 | 953 |
| 12 | 980 | 956 | 1050 | 986 | --- | --- | 985 | 956 | 977 | 956 | 997 | 944 |
| 13 | 982 | 954 | 1040 | 986 | --- | --- | 993 | 950 | 1000 | 965 | 969 | 938 |
| 14 | 1010 | 949 | 1010 | 974 | --- | --- | 985 | 950 | 997 | 953 | 977 | 953 |
| 15 | 992 | 948 | 999 | 963 | --- | --- | 981 | 962 | 1010 | 962 | --- | --- |
| 16 | 978 | 938 | 1030 | 979 | --- | --- | 981 | 953 | 993 | 956 | --- | --- |
| 17 | 1000 | 928 | 1020 | 978 | --- | --- | 981 | 959 | 1010 | 969 | --- | --- |
| 18 | 1020 | 927 | 1060 | 987 | --- | --- | 985 | 959 | 1010 | 959 | --- | --- |
| 19 | 1020 | 986 | 1020 | 959 | --- | --- | 977 | 950 | 997 | 947 | --- | --- |
| 20 | 1010 | 972 | 979 | 949 | --- | --- | 989 | 959 | 989 | 959 | --- | --- |
| 21 | 1020 | 974 | 995 | 971 | --- | --- | 997 | 959 | 989 | 962 | --- | --- |
| 22 | 1020 | 953 | 1000 | 987 | --- | --- | 993 | 947 | 993 | 965 | --- | --- |
| 23 | 1000 | 956 | 1020 | 979 | --- | --- | 981 | 950 | 1000 | 965 | --- | --- |
| 24 | 998 | 970 | 1040 | 995 | --- | --- | 985 | 950 | 997 | 965 | --- | --- |
| 25 | 984 | 984 | 1020 | 971 | --- | --- | 985 | 953 | 981 | 959 | --- | --- |
| 26 | 1010 | 971 | 1050 | 971 | --- | --- | 997 | 965 | 981 | 959 | --- | --- |
| 27 | 1020 | 974 | 1060 | 964 | --- | --- | 1000 | 953 | 985 | 959 | --- | --- |
| 28 | 1010 | 964 | 1000 | 980 | --- | --- | 989 | 962 | 985 | 959 | --- | --- |
| 29 | 1030 | 974 | 1030 | 984 | --- | --- | 934 | 953 | 985 | 956 | --- | --- |
| 30 | 1040 | 961 | 1000 | 984 | --- | --- | 981 | 944 | 977 | 959 | --- | --- |
| 31 | --- | --- | 1030 | 980 | --- | --- | 985 | 941 | 981 | 956 | --- | --- |
| MONTH | 1040 | 892 | 1060 | 949 | 1020 | 953 | 1010 | 941 | 1010 | 932 | 997 | 935 |
| YEAR | 1060 | 778 | | | | | | | | | | |

COLORADO RIVER MAIN STEM

09380000 COLORADO RIVER AT LEES FERRY, AZ--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

PHYTOPLANKTON

| DATE | OCT 6,77 | | NOV 4,77 | | MAR 6,78 | | MAY 3,78 | |
|---|---|---|---|---|---|---|---|---|
| TIME | 1600 | | 1200 | | 1100 | | 1000 | |
| TOTAL CELLS/ML | 4000 | | 170 | | 95 | | 190 | |
| DIVERSITY: DIVISION | 1.5 | | 1.8 | | 0.6 | | 0.4 | |
| .CLASS | 1.5 | | 1.8 | | 0.6 | | 0.4 | |
| ..ORDER | 1.6 | | 1.8 | | 0.6 | | 0.4 | |
| ...FAMILY | 2.1 | | 2.2 | | 1.8 | | 1.9 | |
| ....GENUS | 2.1 | | 2.4 | | 1.8 | | 2.3 | |
| ORGANISM | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT |
| CHLOROPHYTA (GREEN ALGAE) | | | | | | | | |
| .CHLOROPHYCEAE | | | | | | | | |
| ..CHLOROCOCCALES | | | | | | | | |
| ...OOCYSTACEAE | | | | | | | | |
| ....CHODATELLA | 49 | 1 | -- | - | -- | - | -- | - |
| ....OOCYSTIS | 98 | 2 | -- | - | -- | - | -- | - |
| ....TETRAEDRON | 25 | 1 | -- | - | -- | - | -- | - |
| ...SCENEDESMACEAE | | | | | | | | |
| ....CRUCIGENIA | 200 | 5 | 16 | 10 | -- | - | -- | - |
| ....SCENEDESMUS | -- | - | 16 | 10 | -- | - | -- | - |
| ..VOLVOCALES | | | | | | | | |
| ...CHLAMYDOMONADACEAE | | | | | | | | |
| ....CHLAMYDOMONAS | 150 | 4 | -- | - | 14 | 14 | 14 | 8 |
| ...PHACOTACEAE | | | | | | | | |
| ....PHACOTUS | 25 | 1 | -- | - | -- | - | -- | - |
| CHRYSOPHYTA | | | | | | | | |
| .BACILLARIOPHYCEAE | | | | | | | | |
| ..PENNALES | | | | | | | | |
| ...ACHNANTHACEAE | | | | | | | | |
| ....ACHNANTHES | -- | - | -- | - | -- | - | 29# | 15 |
| ....COCCONEIS | 25 | 1 | -- | - | -- | - | 43# | 23 |
| ....RHOICOSPHENIA | 98 | 2 | -- | - | -- | - | -- | - |
| ...CYMBELLACEAE | | | | | | | | |
| ....AMPHORA | 25 | 1 | -- | - | -- | - | -- | - |
| ....CYMBELLA | -- | - | 4 | 2 | 41# | 43 | -- | - |
| ...DIATOMACEAE | | | | | | | | |
| ....DIATOMA | 910# | 22 | 66# | 38 | 14 | 14 | 72# | 38 |
| ...FRAGILARIACEAE | | | | | | | | |
| ....SYNEDRA | 25 | 1 | -- | - | 27# | 29 | 14 | 8 |
| ...NAVICULACEAE | | | | | | | | |
| ....NAVICULA | 74 | 2 | -- | - | -- | - | -- | - |
| ....NEIDIUM | -- | - | -- | - | -- | - | 14 | 8 |
| ...NITZSCHIACEAE | | | | | | | | |
| ....NITZSCHIA | 25 | 1 | 12 | 7 | -- | - | -- | - |
| ...TABELLARIACEAE | | | | | | | | |
| ....TABELLARIA | -- | - | -- | - | -- | - | -- | - |
| CRYPTOPHYTA (CRYPTOMONADS) | | | | | | | | |
| .CRYPTOPHYCEAE | | | | | | | | |
| ..CRYPTOMONADALES | | | | | | | | |
| ...CRYPTOMONADACEAE | | | | | | | | |
| ....CRYPTOMONAS | 25 | 1 | -- | - | -- | - | -- | - |
| CYANOPHYTA (BLUE-GREEN ALGAE) | | | | | | | | |
| .CYANOPHYCEAE | | | | | | | | |
| ..CHROOCOCCALES | | | | | | | | |
| ...CHROOCOCCACEAE | | | | | | | | |
| ....AGMENELLUM | -- | - | -- | - | -- | - | -- | - |
| ..HORMOGONALES | | | | | | | | |
| ...NOSTOCACEAE | | | | | | | | |
| ....ANABAENA | -- | - | 53# | 19 | -- | - | -- | - |
| ...OSCILLATORIACEAE | | | | | | | | |
| ....LYNGBYA | -- | - | -- | - | -- | - | -- | - |
| ....OSCILLATORIA | <300# | 56 | -- | - | -- | - | -- | - |
| EUGLENOPHYTA (EUGLENOIDS) | | | | | | | | |
| .EUGLENOPHYCEAE | | | | | | | | |
| ..EUGLENALES | | | | | | | | |
| ...EUGLENACEAE | | | | | | | | |
| ....EUGLENA | -- | - | 25 | 14 | -- | - | -- | - |
| PYRRHOPHYTA (FIRE ALGAE) | | | | | | | | |
| .DINOPHYCEAE | | | | | | | | |
| ..PERIDINIALES | | | | | | | | |
| ...PERIDINIACEAE | | | | | | | | |
| ....PERIDINIUM | 25 | 1 | -- | - | -- | - | -- | - |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

09380000 COLORADO RIVER AT LEES FERRY, AZ--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

PHYTOPLANKTON

| DATE | JUL 5,78 | | AUG 17,78 | | SEP 6,78 | |
|---|---|---|---|---|---|---|
| TIME | 1700 | | 1300 | | 1400 | |
| TOTAL CELLS/ML | 88 | | 590 | | 1700 | |
| DIVERSITY: DIVISION | 0.0 | | 0.5 | | 0.1 | |
| .CLASS | 0.0 | | 0.5 | | 0.1 | |
| ..ORDER | 0.0 | | 0.5 | | 0.1 | |
| ...FAMILY | 0.7 | | 0.6 | | 0.2 | |
| ....GENUS | 0.7 | | 0.6 | | 0.2 | |
| ORGANISM | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT |
| CHLOROPHYTA (GREEN ALGAE) | | | | | | |
| .CHLOROPHYCEAE | | | | | | |
| ..CHLOROCOCCALES | | | | | | |
| ...OOCYSTACEAE | | | | | | |
| ....CHODATELLA | -- | - | 12 | 2 | -- | - |
| ....OOCYSTIS | -- | - | -- | - | -- | - |
| ....TETRAEDRON | -- | - | -- | - | -- | - |
| ...SCENEDESMACEAE | | | | | | |
| ....CRUCIGENIA | -- | - | -- | - | -- | - |
| ....SCENEDESMUS | -- | - | * | 0 | -- | - |
| ..VOLVOCALES | | | | | | |
| ...CHLAMYDOMONADACEAE | | | | | | |
| ....CHLAMYDOMONAS | -- | - | -- | - | -- | - |
| ...PHACOTACEAE | | | | | | |
| ....PHACOTUS | -- | - | -- | - | -- | - |
| CHRYSOPHYTA | | | | | | |
| .BACILLARIOPHYCEAE | | | | | | |
| ..PENNALES | | | | | | |
| ...ACHNANTHACEAE | | | | | | |
| ....ACHNANTHES | -- | - | 22 | 4 | * | 0 |
| ....COCCONEIS | -- | - | * | 0 | * | 0 |
| ....RHOICOSPHENIA | -- | - | -- | - | -- | - |
| ...LYMBELLACEAE | | | | | | |
| ....AMPHORA | -- | - | -- | - | -- | - |
| ....CYMBELLA | -- | - | -- | - | -- | - |
| ...DIATOMACEAE | | | | | | |
| ....DIATOMA | 73# | 83 | 7 | 1 | 14 | 1 |
| ...FRAGILARIACEAE | | | | | | |
| ....SYNEDRA | -- | - | -- | - | -- | - |
| ...NAVICULACEAE | | | | | | |
| ....NAVICULA | -- | - | * | 0 | * | 0 |
| ....NEIDIUM | -- | - | -- | - | -- | - |
| ...NITZSCHIACEAE | | | | | | |
| ....NITZSCHIA | -- | - | * | 0 | -- | - |
| ...TABELLARIACEAE | | | | | | |
| ....TABELLARIA | 15# | 17 | -- | - | -- | - |
| CRYPTOPHYTA (CRYPTOMONADS) | | | | | | |
| .CRYPTOPHYCEAE | | | | | | |
| ..CRYPTOMONADALES | | | | | | |
| ...CRYPTOMONADACEAE | | | | | | |
| ....CRYPTOMONAS | -- | - | -- | - | -- | - |
| CYANOPHYTA (BLUE-GREEN ALGAE) | | | | | | |
| .CYANOPHYCEAE | | | | | | |
| ..CHROOCOCCALES | | | | | | |
| ...CHROOCOCCACEAE | | | | | | |
| ....AGMENELLUM | -- | - | -- | - | * | 0 |
| ..HORMOGONALES | | | | | | |
| ...NOSTOCACEAE | | | | | | |
| ....ANABAENA | -- | - | -- | - | -- | - |
| ...OSCILLATORIACEAE | | | | | | |
| ....LYNGBYA | -- | - | 540# | 92 | -- | - |
| ....OSCILLATORIA | -- | - | -- | - | 1700# | 98 |
| EUGLENOPHYTA (EUGLENOIDS) | | | | | | |
| .EUGLENOPHYCEAE | | | | | | |
| ..EUGLENALES | | | | | | |
| ...EUGLENACEAE | | | | | | |
| ....EUGLENA | -- | - | -- | - | -- | - |
| PYRRHOPHYTA (FIRE ALGAE) | | | | | | |
| .DINOPHYCEAE | | | | | | |
| ..PERIDINIALES | | | | | | |
| ...PERIDINIACEAE | | | | | | |
| ....PERIDINIUM | -- | - | -- | - | -- | - |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

## 09381900 PARIA RIVER AT WHITE HOUSE RUINS NEAR GLEN CANYON, UT

LOCATION.--Lat 37°04'31", long 111°53'23", NE¼ sec.15, T.43 S., R.5 E., Kane County, Hydrologic Unit 14070007, at northern boundary of Paria Canyon Primitive Area, 3.3 mi (5.3 km) downstream from U.S. Highway 89, 6.8 mi (10.9 km) upstream from Buckskin Gulch and 36.1 mi (58.1 km) upstream from mouth.

PERIOD OF RECORD.--September 1977 to current year.

WATER QUALITY DATA

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE, AIR (DEG C) | TEMPER-ATURE (DEG C) | TUR-BID-ITY (JTU) | OXYGEN, DIS-SOLVED (MG/L) | COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) | STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) | HARD-NESS (MG/L AS CACO3) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SEP , 1977 | | | | | | | | | | | |
| 16... | 1000 | 2.3 | 1540 | 8.2 | 22.0 | 18.0 | 380 | 9.2 | K30 | -- | 650 |
| OCT | | | | | | | | | | | |
| 14... | 1030 | .00 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | | | | | | |
| 15... | 1400 | 13 | 1390 | 8.2 | 17.0 | 12.0 | 200 | 8.1 | -- | -- | 580 |
| DEC | | | | | | | | | | | |
| 05... | 1800 | 12 | 1320 | 8.6 | 17.0 | 8.0 | 380 | 9.6 | K4 | -- | 540 |
| JAN , 1978 | | | | | | | | | | | |
| 10... | 1430 | 25 | 1060 | 8.5 | -- | 2.5 | 750 | 13.1 | K4 | 480 | 430 |
| FEB | | | | | | | | | | | |
| 16... | 1600 | 25 | 1400 | 8.1 | 2.0 | 6.0 | 5400 | 10.7 | <1 | 1800 | 490 |
| MAR | | | | | | | | | | | |
| 14... | 1630 | 35 | 2100 | 8.2 | 12.0 | 12.0 | -- | 9.3 | K100 | K70000 | -- |
| APR | | | | | | | | | | | |
| 19... | 1500 | 11 | 1600 | 8.3 | 21.0 | 13.0 | 600 | 8.7 | K10 | 51000 | 630 |
| MAY | | | | | | | | | | | |
| 15... | 0900 | 1.0 | 1640 | 8.3 | 26.0 | 18.5 | 230 | 8.3 | 36 | K100 | 680 |
| JUN | | | | | | | | | | | |
| 06... | 1400 | .00 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | | | |
| 12... | 1400 | .00 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | | | |
| 18... | 0900 | .00 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| SEP | | | | | | | | | | | |
| 05... | 1700 | .00 | -- | -- | -- | -- | -- | -- | -- | -- | -- |

| DATE | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | BICAR-BONATE (MG/L AS HCO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SEP , 1977 | | | | | | | | | | | |
| 16... | 470 | 140 | 74 | 130 | 2.2 | 7.9 | 220 | 730 | 21 | .4 | 13 |
| OCT | | | | | | | | | | | |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | | | | | | |
| 15... | 420 | 110 | 74 | 120 | 2.2 | 5.6 | 200 | 580 | 23 | .3 | 10 |
| DEC | | | | | | | | | | | |
| 05... | 380 | 100 | 70 | 110 | 2.1 | 5.5 | 190 | 550 | 19 | .2 | 9.9 |
| JAN , 1978 | | | | | | | | | | | |
| 10... | 260 | 90 | 49 | 79 | 1.7 | 4.0 | 200 | 410 | 15 | .3 | 8.2 |
| FEB | | | | | | | | | | | |
| 16... | 310 | 110 | 52 | 140 | 2.8 | 4.9 | 220 | 560 | 21 | .3 | 8.3 |
| MAR | | | | | | | | | | | |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- | .4 | -- |
| APR | | | | | | | | | | | |
| 19... | 480 | 120 | 80 | 140 | 2.4 | 6.6 | 180 | 710 | 24 | .3 | 11 |
| MAY | | | | | | | | | | | |
| 15... | 540 | 130 | 87 | 130 | 2.2 | 8.9 | 170 | 750 | 22 | .4 | 12 |
| JUN | | | | | | | | | | | |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | | | |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | | | |
| 18... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| SEP | | | | | | | | | | | |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

K Based on non-ideal colony count.
< Actual value is known to be less than value shown.

09381900 PARIA RIVER AT WHITE HOUSE RUINS NEAR GLEN CANYON, UT--Continued

WATER QUALITY DATA

| DATE | SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER AC-FT) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO-GEN, TOTAL (MG/L AS N) | PHOS-PHORUS, TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | ARSENIC DIS-SOLVED (UG/L AS AS) | BARIUM, DIS-SOLVED (UG/L AS BA) | CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) | CADMIUM DIS-SOLVED (UG/L AS CD) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SEP , 1977 | | | | | | | | | | | |
| 16... | 1300 | 1230 | 1.77 | .35 | .88 | .48 | 9 | 2 | 200 | 10 | 7 |
| OCT | | | | | | | | | | | |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | | | | | | |
| 15... | 1100 | 1020 | 1.50 | -- | -- | -- | -- | 1 | 0 | -- | -- |
| DEC | | | | | | | | | | | |
| 05... | 998 | 960 | 1.36 | -- | -- | -- | -- | 1 | 100 | -- | -- |
| JAN , 1978 | | | | | | | | | | | |
| 10... | 786 | 754 | 1.07 | -- | -- | -- | -- | 1 | 0 | -- | -- |
| FEB | | | | | | | | | | | |
| 16... | 1040 | 1010 | 1.41 | -- | -- | -- | -- | 1 | 100 | -- | -- |
| MAR | | | | | | | | | | | |
| 14... | -- | -- | -- | .63 | 3.7 | .39 | 24 | 2 | 100 | -- | 1 |
| APR | | | | | | | | | | | |
| 19... | 1240 | 1180 | 1.69 | -- | -- | -- | -- | 1 | 0 | -- | -- |
| MAY | | | | | | | | | | | |
| 15... | 1350 | 1220 | 1.84 | -- | -- | -- | -- | 1 | 0 | -- | -- |
| JUN | | | | | | | | | | | |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | | | |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | | | |
| 18... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| SEP | | | | | | | | | | | |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

| DATE | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) | CHRO-MIUM, DIS-SOLVED (UG/L AS CR) | COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) | COBALT, DIS-SOLVED (UG/L AS CO) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) | COPPER, DIS-SOLVED (UG/L AS CU) | IRON, TOTAL RECOV-ERABLE (UG/L AS FE) | IRON, DIS-SOLVED (UG/L AS FE) | LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) | LEAD, DIS-SOLVED (UG/L AS PB) |
|---|---|---|---|---|---|---|---|---|---|---|
| SEP , 1977 | | | | | | | | | | |
| 16... | 20 | 10 | <50 | 0 | 10 | 2 | 7900 | 20 | <100 | 97 |
| OCT | | | | | | | | | | |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | | | | | |
| 15... | -- | -- | -- | -- | -- | 2 | -- | 60 | -- | 11 |
| DEC | | | | | | | | | | |
| 05... | -- | -- | -- | -- | -- | 1 | -- | 40 | -- | 0 |
| JAN , 1978 | | | | | | | | | | |
| 10... | -- | -- | -- | -- | -- | 5 | -- | 40 | -- | 2 |
| FEB | | | | | | | | | | |
| 16... | -- | -- | -- | -- | -- | 3 | -- | 20 | -- | 1 |
| MAR | | | | | | | | | | |
| 14... | 100 | 10 | 44 | 0 | 200 | 11 | 140000 | 30 | 1 | 0 |
| APR | | | | | | | | | | |
| 19... | -- | -- | -- | -- | -- | 11 | -- | 60 | -- | 0 |
| MAY | | | | | | | | | | |
| 15... | -- | -- | -- | -- | -- | 2 | -- | 30 | -- | 0 |
| JUN | | | | | | | | | | |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | | |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | | |
| 18... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| SEP | | | | | | | | | | |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

< Actual value is known to be less than value shown.

09381900 PARIA RIVER AT WHITE HOUSE RUINS NEAR GLEN CANYON, UT--Continued

WATER QUALITY DATA

| DATE | MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) | MANGANESE, DISSOLVED (UG/L AS MN) | MERCURY TOTAL RECOVERABLE (UG/L AS HG) | MERCURY DISSOLVED (UG/L AS HG) | SELENIUM, TOTAL (UG/L AS SE) | SELENIUM, DISSOLVED (UG/L AS SE) | ZINC, TOTAL RECOVERABLE (UG/L AS ZN) | ZINC, DISSOLVED (UG/L AS ZN) | SEDIMENT, SUSPENDED (MG/L) | SEDIMENT DISCHARGE, SUSPENDED (T/DAY) |
|---|---|---|---|---|---|---|---|---|---|---|
| SEP , 1977 | | | | | | | | | | |
| 16... | 280 | 10 | .0 | .0 | 0 | 0 | 70 | 10 | 551 | 3.4 |
| OCT | | | | | | | | | | |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | | | | | |
| 15... | -- | 8 | -- | -- | -- | 2 | -- | 20 | 801 | 29 |
| DEC | | | | | | | | | | |
| 05... | -- | 10 | -- | -- | -- | 1 | -- | 10 | 538 | 18 |
| JAN , 1978 | | | | | | | | | | |
| 10... | -- | 10 | -- | -- | -- | 1 | -- | 20 | 3410 | 231 |
| FEB | | | | | | | | | | |
| 16... | -- | 0 | -- | -- | -- | 3 | -- | 20 | 9440 | 658 |
| MAR | | | | | | | | | | |
| 14... | 3900 | 10 | .0 | .0 | 6 | 5 | 620 | 20 | 8380 | 792 |
| APR | | | | | | | | | | |
| 19... | -- | 10 | -- | -- | -- | 1 | -- | 50 | 1150 | 36 |
| MAY | | | | | | | | | | |
| 15... | -- | 0 | -- | -- | -- | 0 | -- | 30 | 276 | .75 |
| JUN | | | | | | | | | | |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | | |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | | |
| 18... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| SEP | | | | | | | | | | |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

## 09381950 PARIA RIVER BELOW WATER POCKETS NEAR PAGE, AZ

LOCATION.--Lat 36°56'47", long 111°40'32", NE¼NE¼ sec.19, T.41 N., R.7 E., Coconino County, Hydrologic Unit 14070007, in Paria Canyon Primitive Area, 8.9 mi (14.3 km) upstream from mouth and 20.4 mi (32.8 km) downstream from Buckskin Gulch.

PERIOD OF RECORD.--September 1977 to current year.

### WATER QUALITY DATA

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE, AIR (DEG C) | TEMPER-ATURE (DEG C) | TUR-BID-ITY (JTU) | OXYGEN, DIS-SOLVED (MG/L) | COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) | STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) | HARD-NESS (MG/L AS CACO3) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SEP , 1977 | | | | | | | | | | | |
| 14... | 0900 | 14 | 1450 | 7.6 | -- | 18.5 | 48000 | -- | 2800 | K20000 | 680 |
| OCT | | | | | | | | | | | |
| 13... | 0930 | 5.2 | 510 | 8.1 | 8.0 | 9.0 | 10 | 10.0 | <1 | K4 | 220 |
| NOV | | | | | | | | | | | |
| 16... | 1300 | 16 | 1070 | 8.3 | 16.0 | 9.0 | -- | 10.1 | K5 | 60 | 430 |
| DEC | | | | | | | | | | | |
| 06... | 1330 | 16 | 990 | 8.3 | -- | 7.0 | 200 | 10.4 | K2 | -- | 410 |
| JAN , 1978 | | | | | | | | | | | |
| 11... | 1430 | 37 | 1220 | 8.4 | 12.0 | 6.5 | 1200 | 10.6 | K18 | 400 | 150 |
| FEB | | | | | | | | | | | |
| 15... | 1200 | 32 | 1240 | 8.1 | 12.0 | -- | 1600 | 11.1 | <1 | 1300 | 450 |
| MAR | | | | | | | | | | | |
| 13... | 1230 | 44 | 1420 | 8.3 | 13.0 | 9.0 | -- | 10.1 | K280 | K43000 | -- |
| APR | | | | | | | | | | | |
| 18... | 1130 | 17 | 900 | 8.3 | -- | 12.0 | 950 | 9.4 | K40 | 73000 | 440 |
| MAY | | | | | | | | | | | |
| 16... | 1230 | 5.6 | 510 | 8.4 | 22.5 | 20.5 | -- | 8.5 | <1 | <1 | 220 |
| JUN | | | | | | | | | | | |
| 07... | 1130 | 4.8 | 495 | 8.2 | 32.5 | 28.0 | -- | -- | <1 | 360 | 200 |
| JUL | | | | | | | | | | | |
| 13... | 1130 | 4.5 | 470 | 8.5 | 36.0 | 23.0 | 1 | 8.5 | -- | -- | 180 |
| AUG | | | | | | | | | | | |
| 16... | 1130 | 4.4 | 490 | 8.3 | 28.0 | 22.0 | 90 | 7.7 | K4 | 42 | 180 |
| SEP | | | | | | | | | | | |
| 07... | 1230 | 5.7 | 440 | 8.6 | 32.5 | 23.0 | -- | 7.8 | K2 | <1 | -- |

| DATE | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | BICAR-BONATE (MG/L AS HCO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SEP , 1977 | | | | | | | | | | | |
| 14... | 520 | 190 | 50 | 87 | 1.5 | 12 | 200 | 720 | 11 | .6 | 11 |
| OCT | | | | | | | | | | | |
| 13... | 93 | 52 | 21 | 29 | .9 | 3.0 | 150 | 140 | 9.1 | .1 | 11 |
| NOV | | | | | | | | | | | |
| 16... | 320 | 86 | 53 | 87 | 1.8 | 4.7 | 140 | 430 | 19 | 3.0 | 11 |
| DEC | | | | | | | | | | | |
| 06... | 270 | 81 | 50 | 78 | 1.7 | 4.5 | 170 | 360 | 9.1 | .2 | 10 |
| JAN , 1978 | | | | | | | | | | | |
| 11... | 320 | 100 | 54 | 100 | 2.0 | 4.3 | 180 | -- | 18 | .3 | 8.1 |
| FEB | | | | | | | | | | | |
| 15... | 260 | 100 | 49 | 120 | 2.5 | 4.8 | 230 | 460 | 22 | 3.0 | 8.8 |
| MAR | | | | | | | | | | | |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- | .4 | -- |
| APR | | | | | | | | | | | |
| 18... | 280 | 90 | 52 | 97 | 2.0 | 5.2 | 190 | 430 | 16 | .3 | 10 |
| MAY | | | | | | | | | | | |
| 16... | 92 | 52 | 22 | 32 | .9 | 3.6 | 150 | 130 | 9.4 | .2 | 11 |
| JUN | | | | | | | | | | | |
| 07... | 85 | 45 | 21 | 30 | .9 | 3.2 | 140 | 120 | 9.2 | .2 | 6.5 |
| JUL | | | | | | | | | | | |
| 13... | 75 | 38 | 21 | 30 | 1.0 | 3.0 | 130 | 120 | 9.5 | .1 | 9.2 |
| AUG | | | | | | | | | | | |
| 16... | 54 | 41 | 18 | 37 | 1.2 | 3.4 | 150 | 120 | 12 | .2 | 11 |
| SEP | | | | | | | | | | | |
| 07... | -- | -- | -- | -- | -- | -- | -- | -- | -- | .1 | -- |

K Based on non-ideal colony count.
< Actual value is known to be less than value shown.

09381950 PARIA RIVER BELOW WATER POCKETS NEAR PAGE, AZ--Continued

| DATE | SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER AC-FT) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO-GEN, TOTAL (MG/L AS N) | PHOS-PHORUS, TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | ARSENIC DIS-SOLVED (UG/L AS AS) | BARIUM, DIS-SOLVED (UG/L AS BA) | CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) | CADMIUM DIS-SOLVED (UG/L AS CD) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SEP , 1977 | | | | | | | | | | | |
| 14... | 1240 | 1180 | 1.69 | 1.7 | 32 | 9.4 | 2400 | 1 | 200 | 80 | 2 |
| OCT | | | | | | | | | | | |
| 13... | 322 | 339 | .44 | -- | -- | -- | -- | 2 | 200 | -- | -- |
| NOV | | | | | | | | | | | |
| 16... | 810 | 760 | 1.10 | -- | -- | -- | -- | 2 | 0 | -- | -- |
| DEC | | | | | | | | | | | |
| 06... | -- | 677 | .92 | -- | -- | -- | -- | 2 | 100 | -- | -- |
| JAN , 1978 | | | | | | | | | | | |
| 11... | 948 | 858 | 1.29 | -- | -- | -- | -- | 1 | 100 | -- | -- |
| FEB | | | | | | | | | | | |
| 15... | 933 | 879 | 1.27 | -- | -- | -- | -- | 2 | 100 | -- | -- |
| MAR | | | | | | | | | | | |
| 13... | -- | -- | -- | .69 | 2.1 | 3.6 | 22 | 2 | 200 | 2 | 1 |
| APR | | | | | | | | | | | |
| 18... | 863 | 794 | 1.17 | -- | -- | -- | -- | 1 | 0 | -- | -- |
| MAY | | | | | | | | | | | |
| 16... | 350 | 337 | .48 | -- | -- | -- | -- | 2 | 0 | -- | -- |
| JUN | | | | | | | | | | | |
| 07... | 305 | 304 | .41 | -- | -- | -- | -- | 2 | 100 | -- | -- |
| JUL | | | | | | | | | | | |
| 13... | 298 | 295 | .41 | -- | -- | -- | -- | 3 | 200 | -- | -- |
| AUG | | | | | | | | | | | |
| 16... | 309 | 317 | .42 | -- | -- | -- | -- | 3 | 90 | -- | -- |
| SEP | | | | | | | | | | | |
| 07... | -- | -- | -- | .85 | 1.3 | .02 | 3 | 3 | 300 | 0 | 0 |

| DATE | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) | CHRO-MIUM, DIS-SOLVED (UG/L AS CR) | COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) | COBALT, DIS-SOLVED (UG/L AS CO) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) | COPPER, DIS-SOLVED (UG/L AS CU) | IRON, TOTAL RECOV-ERABLE (UG/L AS FE) | IRON, DIS-SOLVED (UG/L AS FE) | LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) | LEAD, DIS-SOLVED (UG/L AS PB) |
|---|---|---|---|---|---|---|---|---|---|---|
| SEP , 1977 | | | | | | | | | | |
| 14... | 50 | 10 | 400 | 0 | 170 | 10 | 11000 | 20 | 900 | 79 |
| OCT | | | | | | | | | | |
| 13... | -- | -- | -- | -- | -- | 1 | -- | 20 | -- | 12 |
| NOV | | | | | | | | | | |
| 16... | -- | -- | -- | -- | -- | 3 | -- | 160 | -- | 9 |
| DEC | | | | | | | | | | |
| 06... | -- | -- | -- | -- | -- | 2 | -- | 20 | -- | 0 |
| JAN , 1978 | | | | | | | | | | |
| 11... | -- | -- | -- | -- | -- | 2 | -- | 30 | -- | 1 |
| FEB | | | | | | | | | | |
| 15... | -- | -- | -- | -- | -- | 3 | -- | 30 | -- | 0 |
| MAR | | | | | | | | | | |
| 13... | 80 | 10 | 27 | 0 | 110 | 5 | 77000 | 60 | 53 | 0 |
| APR | | | | | | | | | | |
| 18... | -- | -- | -- | -- | -- | 12 | -- | 60 | -- | 0 |
| MAY | | | | | | | | | | |
| 16... | -- | -- | -- | -- | -- | 1 | -- | 60 | -- | 0 |
| JUN | | | | | | | | | | |
| 07... | -- | -- | -- | -- | -- | 2 | -- | 20 | -- | 1 |
| JUL | | | | | | | | | | |
| 13... | -- | -- | -- | -- | -- | 4 | -- | 40 | -- | 3 |
| AUG | | | | | | | | | | |
| 16... | -- | -- | -- | -- | -- | 2 | -- | <10 | -- | 4 |
| SEP | | | | | | | | | | |
| 07... | 0 | 0 | 0 | 0 | 6 | 2 | 540 | 20 | 0 | 0 |

< Actual value is known to be less than value shown.

09381950 PARIA RIVER BELOW WATER POCKETS NEAR PAGE, AZ--Continued

WATER QUALITY DATA

| DATE | MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) | MANGANESE, DISSOLVED (UG/L AS MN) | MERCURY TOTAL RECOVERABLE (UG/L AS HG) | MERCURY DISSOLVED (UG/L AS HG) | SELENIUM, TOTAL (UG/L AS SE) | SELENIUM, DISSOLVED (UG/L AS SE) | ZINC, TOTAL RECOVERABLE (UG/L AS ZN) | ZINC, DISSOLVED (UG/L AS ZN) | SEDIMENT, SUSPENDED (MG/L) | SEDIMENT DISCHARGE, SUSPENDED (T/DAY) |
|---|---|---|---|---|---|---|---|---|---|---|
| SEP , 1977 | | | | | | | | | | |
| 14... | 10000 | 10 | 2.1 | .0 | 1 | 1 | 190 | 20 | 87300 | 3300 |
| OCT | | | | | | | | | | |
| 13... | -- | 20 | -- | -- | -- | 0 | -- | 0 | 30 | .43 |
| NOV | | | | | | | | | | |
| 16... | -- | 10 | -- | -- | -- | 2 | -- | 40 | 218 | 9.5 |
| DEC | | | | | | | | | | |
| 06... | -- | 10 | -- | -- | -- | 1 | -- | 10 | 210 | 9.1 |
| JAN , 1978 | | | | | | | | | | |
| 11... | -- | 20 | -- | -- | -- | 1 | -- | 30 | 2860 | 286 |
| FEB | | | | | | | | | | |
| 15... | -- | 20 | -- | -- | -- | 3 | -- | -- | 1910 | 166 |
| MAR | | | | | | | | | | |
| 13... | 2700 | 10 | .1 | .0 | 4 | 5 | 340 | 50 | 8510 | 1030 |
| APR | | | | | | | | | | |
| 18... | -- | 10 | -- | -- | -- | 1 | -- | 50 | 1620 | 75 |
| MAY | | | | | | | | | | |
| 16... | -- | 0 | -- | -- | -- | 0 | -- | 30 | 19 | .29 |
| JUN | | | | | | | | | | |
| 07... | -- | 0 | -- | -- | -- | 0 | -- | 50 | 16 | .21 |
| JUL | | | | | | | | | | |
| 13... | -- | 10 | -- | -- | -- | -- | -- | 20 | 4 | .05 |
| AUG | | | | | | | | | | |
| 16... | -- | <1 | -- | -- | -- | -- | -- | <3 | 171 | 2.0 |
| SEP | | | | | | | | | | |
| 07... | 20 | 10 | .0 | .1 | 0 | 1 | 40 | 10 | 33 | .51 |

< Actual value is known to be less than value shown.

## 09382000 PARIA RIVER AT LEES FERRY, AZ

LOCATION.--Lat 36°52'20", long 111°35'38", in NW¼NE¼ sec.13, T.40 N., R.7 E., Coconino County, Hydrologic Unit 14070007, on left bank 0.6 mi (1.0 km) northwest of Lees Ferry, and 1.1 mi (1.8 km) upstream from mouth.

DRAINAGE AREA.--1,410 $mi^2$ (3,652 $km^2$).

PERIOD OF RECORD.--October 1923 to current year.

REVISED RECORDS.--WSP 1925: 1958(M), drainage area.

GAGE.--Water-stage recorder. Datum of gage is 3,123.40 ft (952.012 m) National Geodetic Vertical Datum of 1929. Prior to Oct. 5, 1925, nonrecording gage at site 2,000 ft (610 m) upstream at different datum. Oct. 13, 1925, to Sept. 11, 1929, nonrecording gage at present site and datum.

REMARKS.--Records good. Diversions above station for irrigation of about 3,300 acres (13.4 $km^2$).

AVERAGE DISCHARGE.--55 years, 29.0 $ft^3/s$ (0.821 $m^3/s$), 21,010 acre-ft/yr (25.9 $hm^3/yr$); median of yearly mean discharges, 26 $ft^3/s$ (0.74 $m^3/s$), 18,800 acre-ft/yr (23 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,100 $ft^3/s$ (456 $m^3/s$) Oct. 5, 1925, gage height, 16.3 ft (4.97 m), from flood mark, from rating curve extended above 2,000 $ft^3/s$ (57 $m^3/s$) on basis of float-area measurement of peak flow; maximum gage height, 16.35 ft (4.983 m) Sept. 1, 1963; minimum daily discharge, 1 $ft^3/s$ (0.03 $m^3/s$) in most years prior to 1931.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,270 $ft^3/s$ (36.0 $m^3/s$) Mar. 5, gage height, 9.60 ft (2.926 m), no peak above base of 1,400 $ft^3/s$ (39.6 $m^3/s$); minimum daily, 2.0 $ft^3/s$ (0.057 $m^3/s$) July 22-28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5.5 | 10 | 17 | 40 | 42 | 98 | 20 | 14 | 4.5 | 2.8 | 3.6 | 4.0 |
| 2 | 5.0 | 10 | 16 | 18 | 26 | 222 | 50 | 25 | 5.0 | 2.8 | 3.2 | 4.0 |
| 3 | 5.0 | 14 | 17 | 16 | 25 | 252 | 40 | 18 | 4.5 | 2.5 | 3.6 | 4.0 |
| 4 | 5.5 | 13 | 18 | 18 | 23 | 138 | 30 | 18 | 4.5 | 2.5 | 12 | 4.0 |
| 5 | 5.5 | 13 | 18 | 20 | 20 | 378 | 24 | 10 | 5.0 | 2.8 | 16 | 4.0 |
| 6 | 5.5 | 15 | 17 | 20 | 25 | 289 | 21 | 10 | 5.0 | 2.8 | 10 | 3.6 |
| 7 | 5.0 | 29 | 16 | 21 | 54 | 108 | 16 | 5.0 | 4.5 | 3.2 | 10 | 4.0 |
| 8 | 7.0 | 18 | 16 | 18 | 41 | 81 | 12 | 5.0 | 4.5 | 2.8 | 5.0 | 6.0 |
| 9 | 5.5 | 13 | 14 | 15 | 33 | 63 | 39 | 5.0 | 4.0 | 2.8 | 4.0 | 7.9 |
| 10 | 4.5 | 10 | 14 | 18 | 65 | 55 | 154 | 5.0 | 3.2 | 5.0 | 4.0 | 3.6 |
| 11 | 4.5 | 10 | 17 | 35 | 218 | 57 | 136 | 4.0 | 2.5 | 3.6 | 3.0 | 2.8 |
| 12 | 4.0 | 10 | 16 | 40 | 68 | 96 | 84 | 4.0 | 3.6 | 2.8 | 3.0 | 2.8 |
| 13 | 4.5 | 10 | 17 | 19 | 36 | 61 | 56 | 4.0 | 3.6 | 3.2 | 3.0 | 2.8 |
| 14 | 4.5 | 10 | 15 | 15 | 33 | 36 | 50 | 4.0 | 2.5 | 3.6 | 3.0 | 3.2 |
| 15 | 4.5 | 10 | 15 | 21 | 31 | 21 | 40 | 4.0 | 2.5 | 4.0 | 3.2 | 4.5 |
| 16 | 4.5 | 16 | 17 | 71 | 24 | 8.8 | 30 | 4.0 | 2.2 | 5.0 | 3.2 | 8.1 |
| 17 | 4.5 | 15 | 16 | 38 | 19 | 6.0 | 20 | 4.0 | 2.2 | 29 | 2.8 | 13 |
| 18 | 4.5 | 15 | 17 | 47 | 12 | 12 | 18 | 4.0 | 2.8 | 23 | 2.8 | 8.2 |
| 19 | 5.0 | 15 | 25 | 31 | 12 | 22 | 17 | 4.5 | 2.8 | 20 | 3.6 | 6.0 |
| 20 | 8.2 | 14 | 18 | 52 | 15 | 43 | 15 | 4.5 | 2.5 | 4.0 | 4.0 | 5.0 |
| 21 | 90 | 13 | 8.8 | 30 | 21 | 55 | 16 | 5.5 | 2.8 | 2.2 | 6.0 | 5.0 |
| 22 | 42 | 12 | 7.0 | 20 | 24 | 63 | 13 | 6.0 | 2.5 | 2.0 | 8.4 | 5.0 |
| 23 | 42 | 18 | 8.2 | 20 | 29 | 108 | 13 | 5.0 | 2.8 | 2.0 | 16 | 5.0 |
| 24 | 20 | 18 | 21 | 30 | 28 | 64 | 11 | 4.5 | 2.2 | 2.0 | 6.5 | 5.0 |
| 25 | 20 | 17 | 21 | 30 | 25 | 46 | 9.4 | 4.5 | 2.2 | 2.0 | 6.5 | 5.0 |
| 26 | 10 | 18 | 18 | 20 | 28 | 31 | 9.4 | 4.5 | 2.2 | 2.0 | 5.0 | 5.0 |
| 27 | 10 | 17 | 19 | 20 | 31 | 25 | 8.2 | 4.5 | 2.2 | 2.0 | 3.2 | 5.0 |
| 28 | 10 | 16 | 23 | 26 | 20 | 29 | 8.2 | 4.5 | 2.9 | 2.0 | 3.2 | 5.0 |
| 29 | 10 | 16 | 33 | 30 | --- | 31 | 7.6 | 4.5 | 4.0 | 4.4 | 3.6 | 5.0 |
| 30 | 15 | 16 | 31 | 28 | --- | 33 | 6.0 | 5.0 | 3.2 | 4.0 | 4.0 | 5.0 |
| 31 | 15 | --- | 29 | 29 | --- | 30 | --- | 4.5 | --- | 3.2 | 4.0 | --- |
| TOTAL | 386.7 | 431 | 557.0 | 856 | 1028 | 2561.8 | 973.8 | 209.0 | 98.9 | 156.0 | 169.4 | 151.5 |
| MEAN | 12.5 | 14.4 | 18.0 | 27.6 | 36.7 | 82.6 | 32.5 | 6.74 | 3.30 | 5.03 | 5.46 | 5.05 |
| MAX | 90 | 29 | 33 | 71 | 218 | 378 | 154 | 25 | 5.0 | 29 | 16 | 13 |
| MIN | 4.0 | 10 | 7.0 | 15 | 12 | 6.0 | 6.0 | 4.0 | 2.2 | 2.0 | 2.8 | 2.8 |
| AC-FT | 767 | 855 | 1100 | 1700 | 2040 | 5080 | 1930 | 415 | 196 | 309 | 336 | 301 |

CAL YR 1977 TOTAL 4561.3 MEAN 12.5 MAX 231 MIN 3.2 AC-FT 9050
WTR YR 1978 TOTAL 7579.1 MEAN 20.8 MAX 378 MIN 2.0 AC-FT 15030

09382000 PARIA RIVER AT LEES FERRY, AZ--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1947 to September 1976, September 1977 to current year.

PERIOD OF DAILY RECORD.--
CHEMICAL ANALYSIS: October 1947 to February 1950, October 1969 to September 1972, September 1977 to current year.
SPECIFIC CONDUCTANCE: October 1964 to September 1976.
WATER TEMPERATURE: October 1956 to September 1976.
SUSPENDED-SEDIMENT DISCHARGE: October 1947 to September 1976.

WATER QUALITY DATA

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE, AIR (DEG C) | TEMPER-ATURE (DEG C) | TUR-BID-ITY (JTU) | OXYGEN, DIS-SOLVED (MG/L) | COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) | STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) | HARD-NESS (MG/L AS CACO3) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SEP , 1977 | | | | | | | | | | | |
| 15... | 0930 | 12 | 1460 | 8.0 | -- | 19.0 | 32000 | 9.4 | 1900 | K18000 | 510 |
| OCT | | | | | | | | | | | |
| 13... | 1530 | 4.6 | 550 | 8.3 | 21.5 | 20.0 | 20 | 7.8 | K16 | K8 | 220 |
| NOV | | | | | | | | | | | |
| 17... | 1200 | 15 | 1080 | 8.4 | 18.0 | 9.0 | 100 | 11.4 | K1 | 20 | 450 |
| DEC | | | | | | | | | | | |
| 07... | 0930 | 16 | 1030 | 8.1 | 13.0 | 4.0 | 140 | 11.7 | K2 | -- | 420 |
| JAN , 1978 | | | | | | | | | | | |
| 12... | 1000 | 49 | 825 | 8.2 | 5.0 | 4.0 | 7900 | 11.7 | K20 | 7600 | 230 |
| FEB | | | | | | | | | | | |
| 15... | 1700 | 29 | 1260 | 8.3 | 10.0 | 8.0 | 1400 | 10.7 | K20 | 1800 | 450 |
| MAR | | | | | | | | | | | |
| 02... | 1530 | 271 | 1450 | 7.9 | -- | 10.0 | -- | -- | -- | -- | 410 |
| 14... | 0930 | 46 | 1700 | 8.4 | 13.5 | 6.5 | -- | 11.4 | K67 | K53000 | -- |
| APR | | | | | | | | | | | |
| 19... | 0930 | 14 | 900 | 8.3 | -- | 10.0 | 1000 | 10.3 | K16 | K110000 | 430 |
| MAY | | | | | | | | | | | |
| 15... | 1430 | 4.4 | 550 | 8.4 | 32.5 | 27.0 | 20 | 7.6 | K1 | K4000 | 210 |
| JUN | | | | | | | | | | | |
| 06... | 1830 | 4.4 | 630 | 8.5 | 31.0 | 27.0 | 2 | -- | <1 | 45 | 210 |
| JUL | | | | | | | | | | | |
| 12... | 1730 | 3.8 | 540 | 8.7 | 37.0 | 31.5 | 9 | 7.3 | -- | -- | 190 |
| AUG | | | | | | | | | | | |
| 15... | 1230 | 3.5 | 500 | 8.4 | 32.0 | 28.0 | 90 | 8.1 | <1 | 300 | 190 |
| SEP | | | | | | | | | | | |
| 06... | 1000 | 4.2 | 440 | 8.4 | 33.0 | 26.0 | -- | 8.0 | K9 | K40 | -- |

| DATE | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | BICAR-BONATE (MG/L AS HCO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SEP , 1977 | | | | | | | | | | | |
| 15... | 350 | 140 | 38 | 150 | 2.9 | 9.6 | 190 | 650 | 20 | .6 | 10 |
| OCT | | | | | | | | | | | |
| 13... | 98 | 52 | 22 | 32 | .9 | 3.3 | 150 | 140 | 9.8 | .2 | 11 |
| NOV | | | | | | | | | | | |
| 17... | 310 | 90 | 55 | 86 | 1.8 | 4.6 | 170 | 420 | 19 | .2 | 11 |
| DEC | | | | | | | | | | | |
| 07... | 300 | 85 | 51 | 77 | 1.6 | 4.6 | 150 | 390 | 14 | .2 | 10 |
| JAN , 1978 | | | | | | | | | | | |
| 12... | 74 | 54 | 23 | 95 | 2.7 | 4.0 | 190 | 250 | 11 | .4 | 8.0 |
| FEB | | | | | | | | | | | |
| 15... | 280 | 100 | 49 | 120 | 2.5 | 5.0 | 210 | 510 | 23 | .4 | 8.8 |
| MAR | | | | | | | | | | | |
| 02... | 270 | 120 | 26 | 180 | 3.9 | 7.5 | 170 | 600 | 17 | .5 | 8.5 |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- | .4 | -- |
| APR | | | | | | | | | | | |
| 19... | 290 | 83 | 53 | 99 | 2.1 | 5.2 | 160 | 450 | 15 | .3 | 11 |
| MAY | | | | | | | | | | | |
| 15... | 91 | 47 | 23 | 35 | 1.0 | 3.9 | 140 | 140 | 11 | .2 | 11 |
| JUN | | | | | | | | | | | |
| 06... | 110 | 45 | 23 | 34 | 1.0 | 3.7 | 120 | 150 | 25 | .2 | 8.9 |
| JUL | | | | | | | | | | | |
| 12... | 83 | 38 | 23 | 40 | 1.3 | 3.9 | 130 | 150 | 11 | .2 | 8.7 |
| AUG | | | | | | | | | | | |
| 15... | 64 | 44 | 20 | 29 | .9 | 3.5 | 150 | 120 | 12 | .2 | 11 |
| SEP | | | | | | | | | | | |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- | -- | .1 | -- |

K Based on non-ideal colony count.
< Actual value is known to be less than value shown.

09382000 PARIA RIVER AT LEES FERRY, AZ--Continued

WATER QUALITY DATA

| DATE | SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER AC-FT) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO-GEN, TOTAL (MG/L AS N) | PHOS-PHORUS, TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | ARSENIC DIS-SOLVED (UG/L AS AS) | BARIUM, DIS-SOLVED (UG/L AS BA) | CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) | CADMIUM DIS-SOLVED (UG/L AS CD) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SEP , 1977 | | | | | | | | | | | |
| 15... | 1140 | 1110 | 1.55 | 2.3 | 24 | 6.4 | 720 | 1 | 300 | 50 | 0 |
| OCT | | | | | | | | | | | |
| 13... | 343 | 345 | .47 | -- | -- | -- | -- | 2 | 200 | -- | -- |
| NOV | | | | | | | | | | | |
| 17... | 817 | 770 | 1.11 | -- | -- | -- | -- | 2 | 0 | -- | -- |
| DEC | | | | | | | | | | | |
| 07... | 784 | 706 | 1.07 | -- | -- | -- | -- | 2 | 100 | -- | -- |
| JAN , 1978 | | | | | | | | | | | |
| 12... | 573 | 539 | .78 | -- | -- | -- | -- | 2 | 100 | -- | -- |
| FEB | | | | | | | | | | | |
| 15... | 947 | 920 | 1.29 | -- | -- | -- | -- | 3 | 100 | -- | -- |
| MAR | | | | | | | | | | | |
| 02... | 1090 | 1050 | 1.48 | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | -- | -- | -- | .69 | 3.2 | 2.8 | 15 | 2 | 200 | 3 | 0 |
| APR | | | | | | | | | | | |
| 19... | 818 | 796 | 1.11 | -- | -- | -- | -- | 3 | 0 | -- | -- |
| MAY | | | | | | | | | | | |
| 15... | 367 | 344 | .50 | -- | -- | -- | -- | 3 | 0 | -- | -- |
| JUN | | | | | | | | | | | |
| 06... | 334 | 349 | .45 | -- | -- | -- | -- | 1 | 200 | -- | -- |
| JUL | | | | | | | | | | | |
| 12... | 344 | 339 | .47 | -- | -- | -- | -- | 3 | 300 | -- | -- |
| AUG | | | | | | | | | | | |
| 15... | 317 | 317 | .43 | -- | -- | -- | -- | 3 | 100 | -- | -- |
| SEP | | | | | | | | | | | |
| 06... | -- | -- | -- | .52 | .93 | .03 | 2 | 3 | -- | 0 | 0 |

| DATE | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) | CHRO-MIUM, DIS-SOLVED (UG/L AS CR) | COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) | COBALT, DIS-SOLVED (UG/L AS CO) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) | COPPER, DIS-SOLVED (UG/L AS CU) | IRON, TOTAL RECOV-ERABLE (UG/L AS FE) | IRON, DIS-SOLVED (UG/L AS FE) | LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) | LEAD, DIS-SOLVED (UG/L AS PB) |
|---|---|---|---|---|---|---|---|---|---|---|
| SEP , 1977 | | | | | | | | | | |
| 15... | 200 | 10 | 400 | 0 | 470 | 2 | 240000 | 30 | 1000 | 7 |
| OCT | | | | | | | | | | |
| 13... | -- | -- | -- | -- | -- | 1 | -- | 10 | -- | 8 |
| NOV | | | | | | | | | | |
| 17... | -- | -- | -- | -- | -- | 1 | -- | 20 | -- | 14 |
| DEC | | | | | | | | | | |
| 07... | -- | -- | -- | -- | -- | 1 | -- | 20 | -- | 9 |
| JAN , 1978 | | | | | | | | | | |
| 12... | -- | -- | -- | -- | -- | 2 | -- | 20 | -- | 1 |
| FEB | | | | | | | | | | |
| 15... | -- | -- | -- | -- | -- | 6 | -- | 10 | -- | 0 |
| MAR | | | | | | | | | | |
| 02... | -- | -- | -- | -- | -- | -- | -- | 30 | -- | -- |
| 14... | 50 | 0 | 24 | 0 | 120 | 4 | 71000 | 20 | 16 | 0 |
| APR | | | | | | | | | | |
| 19... | -- | -- | -- | -- | -- | 9 | -- | 30 | -- | 0 |
| MAY | | | | | | | | | | |
| 15... | -- | -- | -- | -- | -- | 1 | -- | 70 | -- | 0 |
| JUN | | | | | | | | | | |
| 06... | -- | -- | -- | -- | -- | 2 | -- | 60 | -- | 0 |
| JUL | | | | | | | | | | |
| 12... | -- | -- | -- | -- | -- | 5 | -- | 20 | -- | 2 |
| AUG | | | | | | | | | | |
| 15... | -- | -- | -- | -- | -- | 3 | -- | 10 | -- | 0 |
| SEP | | | | | | | | | | |
| 06... | 0 | 0 | 0 | 0 | 8 | 2 | 460 | 10 | 0 | 0 |

09382000 PARIA RIVER AT LEES FERRY, AZ--Continued

WATER QUALITY DATA

| DATE | MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) | MANGANESE, DISSOLVED (UG/L AS MN) | MERCURY TOTAL RECOVERABLE (UG/L AS HG) | MERCURY DISSOLVED (UG/L AS HG) | SELENIUM, TOTAL (UG/L AS SE) | SELENIUM, DISSOLVED (UG/L AS SE) | ZINC, TOTAL RECOVERABLE (UG/L AS ZN) | ZINC, DISSOLVED (UG/L AS ZN) | SEDIMENT, SUSPENDED (MG/L) | SEDIMENT DISCHARGE, SUSPENDED (T/DAY) |
|---|---|---|---|---|---|---|---|---|---|---|
| SEP , 1977 | | | | | | | | | | |
| 15... | 8300 | 0 | 1.4 | .0 | 5 | 0 | 1500 | 10 | 32800 | 1060 |
| OCT | | | | | | | | | | |
| 13... | -- | 20 | -- | -- | -- | 1 | -- | 0 | 31 | .39 |
| NOV | | | | | | | | | | |
| 17... | -- | 8 | -- | -- | -- | 2 | -- | 4 | 200 | 8.6 |
| DEC | | | | | | | | | | |
| 07... | -- | 0 | -- | -- | -- | 1 | -- | 10 | 131 | 5.8 |
| JAN , 1978 | | | | | | | | | | |
| 12... | -- | 0 | -- | -- | -- | 2 | -- | 20 | 14700 | 1970 |
| FEB | | | | | | | | | | |
| 15... | -- | 10 | -- | -- | -- | 2 | -- | 20 | 2280 | 183 |
| MAR | | | | | | | | | | |
| 02... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | 1900 | 10 | .1 | .0 | 6 | 5 | 350 | 30 | 5920 | 746 |
| APR | | | | | | | | | | |
| 19... | -- | 10 | -- | -- | -- | 1 | -- | 50 | 1540 | 62 |
| MAY | | | | | | | | | | |
| 15... | -- | 0 | -- | -- | -- | 0 | -- | 30 | 34 | .41 |
| JUN | | | | | | | | | | |
| 06... | -- | 10 | -- | -- | -- | 1 | -- | 60 | 9 | .11 |
| JUL | | | | | | | | | | |
| 12... | -- | 0 | -- | -- | -- | 1 | -- | 20 | 31 | .32 |
| AUG | | | | | | | | | | |
| 15... | -- | 2 | -- | -- | -- | 1 | -- | <3 | 111 | 1.0 |
| SEP | | | | | | | | | | |
| 06... | 10 | 10 | .0 | .1 | 0 | 1 | 30 | 10 | 33 | .38 |

< Actual value is known to be less than value shown.

## 09383000 COLORADO RIVER AT COMPACT POINT, NEAR LEES FERRY, AZ

LOCATION.--Lat 36°51'05", long 111°36'21", in NE¼SE¼ sec.23, T.40 N., R.7 E., Coconino County, Hydrologic Units 14070006, 15010001, (see REMARKS), 1.0 mi (1.6 km) downstream from Paria River, 1.4 mi (2.3 km) downstream from gage on Colorado River at Lees Ferry, and 29 mi (47 km) downstream from Utah-Arizona State line.

DRAINAGE AREA.--112,000 $mi^2$ (290,100 $km^2$), approximately, including 3,959 $mi^2$ (10,254 $km^2$) in Great Divide basin in southern Wyoming, which is noncontributing (previously considered part of the Missouri River basin).

PERIOD OF RECORD.--October 1913 to current year (monthly discharge only). Prior to October 1950, published in WSP 1313.

DETERMINATION OF DISCHARGE.--There is no gage. Monthly and yearly discharge computed as the sum of flow at stations on Colorado River and Paria River at Lees Ferry.

REMARKS.--This point on the Colorado River is the dividing point between the Upper Basin and Lower Basin, as defined in the Colorado River Compact of 1922. Flow completely regulated by Lake Powell beginning Mar. 13, 1963. (See elsewhere in this report.)

AVERAGE DISCHARGE.--49 years (water years 1914-62), 17,760 $ft^3/s$ (503 $m^3/s$), 12,870,000 acre-ft/yr (15,900 $hm^3/yr$); 14 years (water years 1965-78), 12,150 $ft^3/s$ (344 $m^3/s$), 8,803,000 acre-ft/yr (10,800 $hm^3/yr$).

MONTHLY DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| Month | Mean | Runoff in acre-feet |
|---|---|---|
| October | 6,178 | 379,900 |
| November | 6,568 | 390,900 |
| December | 13,410 | 824,500 |
| CAL YR 1977 | 10,140 | 7,362,000 |
| January | 15,440 | 949,300 |
| February | 10,870 | 603,400 |
| March | 9,503 | 584,300 |
| April | 8,306 | 494,200 |
| May | 10,540 | 647,900 |
| June | 12,740 | 758,300 |
| July | 11,420 | 702,000 |
| August | 17,330 | 1,065,000 |
| September | 16,290 | 968,800 |
| WTR YR 1978 | 11,550 | 8,368,000 |

NOTE.--Record shown is sum of flow at stations on Colorado River and Paria River at Lees Ferry.

## 09383400 LITTLE COLORADO RIVER AT GREER, AZ

LOCATION.--Lat 34°01'00", long 109°27'24", in NE¼SE¼ sec.11, T.7 N., R.27 E., Apache County, Hydrologic Unit 15020001, in Apache National Forest, on upstream side of right abutment of culverts on State Highway 373, at Greer, 0.1 mi (0.2 km) downstream from Filler ditch.

DRAINAGE AREA.--30.9 $mi^2$ (80.0 $km^2$).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1960 to current year.

GAGE.--Water-stage recorder. Datum of gage is 8,283 ft (2,524.7 m), National Geodetic Vertical Datum of 1929. Prior to Aug. 24, 1976, at datum 0.21 ft (0.064 m) higher.

REMARKS.--Records fair except those for winter periods, which are poor. Filler ditch diverts water from river 0.1 mi (0.2 km) above station. (The gaging station on the filler ditch was discontinued in June 1977; therefore, the total flow of the Little Colorado River at this point is no longer measured.)

AVERAGE DISCHARGE.--18 years, 14.8 $ft^3/s$ (0.419 $m^3/s$), 10,720 acre-ft/yr (13.2 $hm^3/yr$); median of yearly mean discharges, 13 $ft^3/s$ (0.37 $m^3/s$), 9,400 acre-ft/yr (12 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 615 $ft^3/s$ (17.4 $m^3/s$) Oct. 20, 1972, gage height, 5.65 ft (1.722 m), from rating curve extended above 150 $ft^3/s$ (4.25 $m^3/s$) on basis of partially estimated culvert computation of peak flow; minimum daily, 0.10 $ft^3/s$ (0.003 $m^3/s$) Sept. 24-30, 1978.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 78 $ft^3/s$ (2.209 $m^3/s$) Apr. 7, gage height, 1.95 ft (0.594 m), base discharge, 60 $ft^3/s$ (1.7 $m^3/s$); minimum daily, 0.10 $ft^3/s$ (0.003 $m^3/s$) Sept. 24-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2.2 | 4.8 | 4.0 | 3.1 | 3.1 | 14 | 45 | 21 | 24 | 10 | 18 | 12 |
| 2 | 2.2 | 3.1 | 4.0 | 3.1 | 2.9 | 13 | 33 | 20 | 24 | 9.7 | 16 | 13 |
| 3 | 2.9 | 5.1 | 3.3 | 3.5 | 2.0 | 12 | 32 | 21 | 23 | 9.3 | 15 | 12 |
| 4 | 3.5 | 4.2 | 3.1 | 3.1 | 2.0 | 12 | 34 | 20 | 22 | 10 | 17 | 12 |
| 5 | 2.6 | 3.3 | 3.1 | 2.0 | 2.0 | 12 | 35 | 20 | 22 | 10 | 18 | 12 |
| 6 | 7.4 | 5.1 | 3.3 | 1.8 | 2.2 | 11 | 42 | 20 | 22 | 9.7 | 15 | 12 |
| 7 | 6.8 | 4.2 | 3.3 | 2.0 | 2.4 | 10 | 47 | 21 | 21 | 9.3 | 15 | 12 |
| 8 | 4.0 | 4.2 | 3.1 | 2.0 | 2.4 | 10 | 32 | 20 | 21 | 9.7 | 16 | 12 |
| 9 | 3.1 | 4.0 | 3.3 | 2.0 | 2.0 | 10 | 22 | 20 | 21 | 9.3 | 16 | 12 |
| 10 | 2.6 | 4.5 | 3.5 | 2.0 | 2.2 | 10 | 18 | 19 | 21 | 9.7 | 16 | 12 |
| 11 | 2.4 | 4.2 | 3.5 | 2.0 | 2.4 | 9.7 | 22 | 18 | 21 | 9.7 | 16 | 11 |
| 12 | 2.2 | 3.8 | 3.5 | 2.0 | 2.0 | 10 | 34 | 20 | 20 | 9.7 | 18 | 11 |
| 13 | 2.2 | 4.0 | 3.1 | 2.0 | 2.0 | 10 | 34 | 22 | 20 | 9.3 | 15 | 11 |
| 14 | 2.9 | 4.0 | 3.3 | 2.0 | 2.4 | 10 | 32 | 26 | 20 | 9.0 | 14 | 11 |
| 15 | 3.8 | 4.5 | 3.5 | 2.0 | 2.4 | 9.7 | 31 | 29 | 20 | 7.5 | 14 | 9.7 |
| 16 | 5.7 | 5.1 | 3.1 | 2.0 | 2.4 | 10 | 35 | 30 | 19 | 6.8 | 13 | 4.3 |
| 17 | 4.2 | 4.0 | 3.1 | 2.0 | 2.4 | 9.7 | 29 | 30 | 18 | 6.8 | 12 | 2.2 |
| 18 | 2.6 | 3.1 | 3.1 | 2.0 | 2.0 | 9.7 | 26 | 29 | 17 | 7.9 | 12 | 4.0 |
| 19 | 2.4 | 3.5 | 3.3 | 2.6 | 2.0 | 11 | 26 | 28 | 17 | 9.0 | 13 | 5.4 |
| 20 | 2.6 | 3.8 | 3.1 | 2.0 | 2.9 | 12 | 24 | 29 | 16 | 9.7 | 18 | 5.7 |
| 21 | 3.1 | 3.5 | 3.5 | 2.0 | 3.1 | 13 | 23 | 29 | 15 | 9.3 | 15 | 4.8 |
| 22 | 4.6 | 3.8 | 3.1 | 2.0 | 3.8 | 15 | 21 | 30 | 15 | 9.0 | 15 | 4.8 |
| 23 | 5.1 | 3.5 | 3.1 | 2.0 | 3.1 | 15 | 21 | 30 | 14 | 9.0 | 15 | 3.0 |
| 24 | 5.4 | 4.0 | 3.1 | 2.0 | 2.4 | 14 | 21 | 29 | 13 | 11 | 13 | .10 |
| 25 | 5.7 | 3.8 | 3.1 | 2.0 | 3.1 | 16 | 21 | 29 | 13 | 13 | 14 | .10 |
| 26 | 6.2 | 4.0 | 3.1 | 2.0 | 3.5 | 17 | 23 | 27 | 12 | 12 | 13 | .10 |
| 27 | 6.8 | 3.5 | 3.5 | 2.0 | 5.1 | 18 | 23 | 26 | 12 | 11 | 12 | .10 |
| 28 | 6.8 | 3.5 | 3.3 | 2.4 | 9.0 | 19 | 23 | 24 | 12 | 10 | 12 | .10 |
| 29 | 8.2 | 3.5 | 3.1 | 3.1 | --- | 21 | 23 | 24 | 12 | 11 | 12 | .10 |
| 30 | 7.5 | 3.3 | 3.1 | 3.1 | --- | 29 | 22 | 23 | 11 | 11 | 12 | .10 |
| 31 | 6.5 | --- | 3.1 | 3.3 | --- | 43 | --- | 24 | --- | 14 | 12 | --- |
| TOTAL | 134.4 | 118.9 | 101.7 | 71.1 | 79.2 | 435.8 | 854 | 758 | 538 | 302.4 | 452 | 209.60 |
| MEAN | 4.34 | 3.96 | 3.28 | 2.29 | 2.83 | 14.1 | 28.5 | 24.5 | 17.9 | 9.75 | 14.6 | 6.99 |
| MAX | 8.2 | 5.1 | 4.0 | 3.5 | 9.0 | 43 | 47 | 30 | 24 | 14 | 18 | 13 |
| MIN | 2.2 | 3.1 | 3.1 | 1.8 | 2.0 | 9.7 | 18 | 18 | 11 | 6.8 | 12 | .10 |
| AC-FT | 267 | 236 | 202 | 141 | 157 | 864 | 1690 | 1500 | 1070 | 600 | 897 | 416 |

CAL YR 1977 TOTAL 2762.70 MEAN 7.57 MAX 68 MIN 2.2 AC-FT 5480
WTR YR 1978 TOTAL 4055.10 MEAN 11.1 MAX 47 MIN .10 AC-FT 8040

09383400 LITTLE COLORADO RIVER AT GREER, AZ--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--January 1976 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | TUR-BID-ITY (JTU) | OXYGEN, DIS-SOLVED (MG/L) | COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 11... | 1800 | 3.0 | 77 | 7.8 | 12.0 | 2 | 8.0 | 14 | 38 | 0 | 10 | 3.2 |
| NOV | | | | | | | | | | | | |
| 08... | 1130 | 4.2 | 60 | 7.8 | 3.0 | 2 | 9.6 | 11 | 33 | 0 | 8.2 | 3.1 |
| DEC | | | | | | | | | | | | |
| 06... | 1130 | 4.0 | 60 | 8.4 | 3.0 | 2 | 10.2 | 2 | 36 | 0 | 10 | 2.7 |
| JAN | | | | | | | | | | | | |
| 11... | 1100 | 11 | 75 | 7.6 | .5 | 2 | 10.6 | -- | 32 | 0 | 8.3 | 2.8 |
| FEB | | | | | | | | | | | | |
| 15... | 1500 | 7.5 | 60 | 7.7 | .5 | 1 | 10.2 | 0 | 35 | 0 | 9.1 | 2.9 |
| MAR | | | | | | | | | | | | |
| 15... | 1700 | 8.5 | 100 | -- | 8.0 | 2 | 8.2 | 1 | 39 | 2 | 10 | 3.3 |
| APR | | | | | | | | | | | | |
| 19... | 1200 | 23 | 60 | 7.6 | 10.0 | 3 | 8.4 | 4 | 24 | 0 | 6.4 | 2.0 |
| MAY | | | | | | | | | | | | |
| 10... | 1130 | 20 | 65 | 7.7 | 12.0 | -- | 8.2 | 0 | 23 | 0 | 5.4 | 2.2 |
| JUN | | | | | | | | | | | | |
| 08... | 0930 | 23 | 42 | 6.9 | 9.0 | 1 | 8.7 | 21 | 17 | 1 | 3.8 | 1.9 |
| JUL | | | | | | | | | | | | |
| 12... | 0945 | 10 | 70 | 8.0 | 12.5 | -- | 8.1 | 78 | 31 | 1 | 8.5 | 2.4 |
| AUG | | | | | | | | | | | | |
| 17... | 0845 | 16 | 65 | 8.2 | 14.0 | 2 | 7.8 | 22 | 37 | 0 | 10 | 2.8 |
| SEP | | | | | | | | | | | | |
| 13... | 1500 | 14 | 70 | 7.4 | 14.0 | 2 | 7.2 | 73 | 31 | 0 | 8.0 | 2.7 |

| DATE | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | BICAR-BONATE (MG/L AS HCO3) | CAR-BONATE (MG/L AS CO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER AC-FT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 11... | 4.4 | .3 | 2.1 | 52 | 0 | 3.8 | 1.2 | .1 | 27 | 73 | 78 | .10 |
| NOV | | | | | | | | | | | | |
| 08... | 5.2 | .4 | 2.0 | 48 | 0 | 2.6 | 1.3 | .1 | 26 | 75 | 73 | .10 |
| DEC | | | | | | | | | | | | |
| 06... | 4.4 | .3 | 1.8 | 46 | 0 | 4.7 | 1.1 | .1 | 28 | 66 | 76 | .09 |
| JAN | | | | | | | | | | | | |
| 11... | 4.6 | .4 | 1.8 | 46 | 0 | 2.5 | 1.2 | .1 | 13 | 71 | 57 | .10 |
| FEB | | | | | | | | | | | | |
| 15... | 5.3 | .4 | 1.7 | 49 | 0 | 3.8 | 1.0 | .1 | 27 | 64 | 76 | .09 |
| MAR | | | | | | | | | | | | |
| 15... | 5.0 | .4 | 1.8 | 44 | -- | 6.0 | 1.3 | .1 | 25 | 70 | 75 | .10 |
| APR | | | | | | | | | | | | |
| 19... | 2.7 | .2 | 1.3 | 29 | 0 | 5.1 | 1.2 | .1 | 20 | 52 | 54 | .07 |
| MAY | | | | | | | | | | | | |
| 10... | 2.9 | .3 | 1.4 | 29 | 0 | 5.4 | 1.1 | .1 | 20 | 58 | 53 | .08 |
| JUN | | | | | | | | | | | | |
| 08... | 2.5 | .3 | 1.4 | 20 | 0 | 4.9 | .9 | .1 | 20 | 41 | 46 | .06 |
| JUL | | | | | | | | | | | | |
| 12... | 3.8 | .3 | 1.7 | 37 | 0 | 4.8 | .8 | .1 | 26 | 57 | 67 | .08 |
| AUG | | | | | | | | | | | | |
| 17... | 4.4 | .3 | 1.9 | 45 | 0 | 3.8 | 1.1 | .1 | 28 | 63 | 75 | .09 |
| SEP | | | | | | | | | | | | |
| 13... | 4.6 | .4 | 2.1 | 39 | 0 | 6.6 | 1.2 | .1 | 30 | 69 | 75 | .09 |

09383400 LITTLE COLORADO RIVER AT GREER, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | NITROGEN, TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | PHOSPHORUS, ORTHO, TOTAL (MG/L AS P) | PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P) |
|---|---|---|---|---|---|---|---|
| OCT | | | | | | | |
| 11... | .03 | -- | .10 | .13 | .09 | -- | -- |
| NOV | | | | | | | |
| 08... | .02 | -- | .16 | .18 | .04 | -- | -- |
| DEC | | | | | | | |
| 06... | .03 | .03 | .61 | .64 | -- | .03 | .13 |
| JAN | | | | | | | |
| 11... | .04 | .05 | .15 | .19 | .06 | -- | .02 |
| FEB | | | | | | | |
| 15... | .07 | .08 | .12 | .19 | .04 | -- | .02 |
| MAR | | | | | | | |
| 15... | .78 | .11 | .35 | 1.1 | .10 | -- | .02 |
| APR | | | | | | | |
| 19... | .13 | .08 | .31 | .44 | .05 | -- | .02 |
| MAY | | | | | | | |
| 10... | .00 | .03 | .20 | .20 | .05 | -- | .01 |
| JUN | | | | | | | |
| 08... | .05 | .01 | .17 | .22 | .05 | -- | .03 |
| JUL | | | | | | | |
| 12... | .01 | .02 | .42 | .43 | .06 | -- | .03 |
| AUG | | | | | | | |
| 17... | .01 | .01 | .46 | .47 | .05 | -- | .02 |
| SEP | | | | | | | |
| 13... | .02 | .03 | .50 | .52 | .08 | -- | .03 |

| DATE | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOVERABLE (UG/L AS BA) | BORON, TOTAL RECOVERABLE (UG/L AS B) | BORON, DISSOLVED (UG/L AS B) | CADMIUM TOTAL RECOVERABLE (UG/L AS CD) | CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) | COPPER, TOTAL RECOVERABLE (UG/L AS CU) | IRON, TOTAL RECOVERABLE (UG/L AS FE) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 11... | 1 | 100 | 90 | 10 | <10 | 10 | <10 | 1200 |
| NOV | | | | | | | | |
| 08... | 1 | 400 | 50 | 10 | 0 | 12 | 3 | 760 |
| DEC | | | | | | | | |
| 06... | 1 | 0 | 70 | 9 | 0 | 10 | 9 | 580 |
| JAN | | | | | | | | |
| 11... | 0 | 0 | 40 | 9 | 1 | 10 | 5 | 560 |
| FEB | | | | | | | | |
| 15... | 0 | 0 | 60 | 9 | 2 | 10 | 7 | 550 |
| MAR | | | | | | | | |
| 15... | 0 | 0 | 70 | 9 | 2 | 0 | 2 | 630 |
| APR | | | | | | | | |
| 19... | 2 | 200 | 70 | 10 | 1 | 0 | 3 | 450 |
| MAY | | | | | | | | |
| 10... | 0 | 100 | 90 | 20 | 3 | 0 | 7 | 540 |
| JUN | | | | | | | | |
| 08... | 1 | -- | 50 | 10 | 33 | 5 | 5 | 320 |
| JUL | | | | | | | | |
| 12... | 1 | 200 | 60 | 10 | 0 | 10 | 9 | 520 |
| AUG | | | | | | | | |
| 17... | 1 | 200 | 50 | 10 | 0 | 10 | 6 | 670 |
| SEP | | | | | | | | |
| 13... | 1 | 100 | 60 | 20 | 1 | 0 | 4 | 490 |

< Actual value is known to be less than value shown.

09383400 LITTLE COLORADO RIVER AT GREER, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | IRON, DIS-SOLVED (UG/L AS FE) | LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) | MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) | MANGA-NESE, DIS-SOLVED (UG/L AS MN) | MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) | SELE-NIUM, TOTAL (UG/L AS SE) | SILVER, TOTAL RECOV-ERABLE (UG/L AS AG) | ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 11... | 810 | <100 | 50 | 40 | .0 | 0 | <10 | 20 |
| NOV | | | | | | | | |
| 08... | 500 | 7 | 60 | 60 | .0 | 0 | 0 | 30 |
| DEC | | | | | | | | |
| 06... | 250 | 3 | 50 | 20 | .0 | 0 | 0 | 30 |
| JAN | | | | | | | | |
| 11... | 120 | 3 | 50 | 10 | .1 | 0 | 1 | 20 |
| FEB | | | | | | | | |
| 15... | 270 | 13 | 40 | 40 | .2 | 0 | 5 | 60 |
| MAR | | | | | | | | |
| 15... | 350 | 5 | 30 | 30 | .0 | 0 | 1 | 20 |
| APR | | | | | | | | |
| 19... | 100 | 6 | 20 | 0 | .0 | 0 | 0 | 10 |
| MAY | | | | | | | | |
| 10... | 160 | 58 | 10 | 0 | .0 | 0 | 0 | 20 |
| JUN | | | | | | | | |
| 08... | 90 | 36 | 20 | 10 | .0 | 0 | 0 | 10 |
| JUL | | | | | | | | |
| 12... | 250 | 2 | 40 | 20 | .0 | 0 | 0 | 20 |
| AUG | | | | | | | | |
| 17... | 330 | 4 | 40 | 20 | .0 | 0 | 0 | 10 |
| SEP | | | | | | | | |
| 13... | 230 | 4 | 30 | 10 | .0 | 0 | 0 | 10 |

| DATE | CARBON, ORGANIC TOTAL (MG/L AS C) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS (UG/L) | PHYTO-PLANK-TON, TOTAL (CELLS PER ML) | PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M | PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M |
|---|---|---|---|---|---|---|
| OCT | | | | | | |
| 11... | 2.5 | .00 | 4 | -- | -- | -- |
| NOV | | | | | | |
| 08... | 1.3 | .00 | 6 | -- | -- | -- |
| DEC | | | | | | |
| 06... | -- | .00 | 4 | -- | -- | -- |
| JAN | | | | | | |
| 11... | 1.1 | .00 | 1 | -- | -- | -- |
| FEB | | | | | | |
| 15... | 1.3 | .00 | 1 | -- | -- | -- |
| MAR | | | | | | |
| 15... | 2.2 | .00 | 2 | -- | -- | -- |
| APR | | | | | | |
| 19... | 3.1 | .00 | 5 | -- | -- | -- |
| MAY | | | | | | |
| 10... | 3.5 | .00 | 0 | -- | -- | -- |
| JUN | | | | | | |
| 08... | 2.7 | .00 | 2 | 57 | 11.6 | 10.9 |
| JUL | | | | | | |
| 12... | 2.9 | .00 | 1 | -- | -- | -- |
| AUG | | | | | | |
| 17... | 2.4 | .00 | 1 | -- | -- | -- |
| SEP | | | | | | |
| 13... | 2.7 | .00 | 7 | -- | -- | -- |

< Actual value is known to be less than value shown.

09383400 LITTLE COLORADO RIVER AT GREER, AZ--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

PHYTOPLANKTON

| | |
|---|---|
| DATE | JUN 8,78 |
| TIME | 0930 |
| TOTAL CELLS/ML | 57 |
| DIVERSITY: DIVISION | 0.8 |
| .CLASS | 0.8 |
| ..ORDER | 1.5 |
| ...FAMILY | 2.0 |
| ....GENUS | 2.0 |

| ORGANISM | CELLS /ML | PER-CENT |
|---|---|---|
| BACILLARIOPHYTA (KARSTEN) | | |
| .BACILLARIOPHYCEAE | | |
| ..FRAGILARIALES | | |
| ...FRAGILARIACEAE | | |
| ....OPEPHORA | 14# | 25 |
| CHRYSOPHYTA | | |
| .BACILLARIOPHYCEAE | | |
| ..CENTRALES | | |
| ...COSCINODISCACEAE | | |
| ....CYCLOTELLA | 14# | 25 |
| ..PENNALES | | |
| ...ACHNANTHACEAE | | |
| ....ACHNANTHES | 14# | 25 |
| ...FRAGILARIACEAE | | |
| ....SYNEDRA | 14# | 25 |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

## 09383500 NUTRIOSO CREEK ABOVE NELSON RESERVOIR, NEAR SPRINGERVILLE, AZ

LOCATION.--Lat 34°01'49", long 109°11'09", in NE¼SW¼ sec.4, T.7 N., R.30 E., Apache County, Hydrologic Unit 15020001, in Apache National Forest, on right bank 2.4 mi (3.9 km) upstream from dam on Nelson Reservoir and 9 mi (14 km) southeast of Springerville.

DRAINAGE AREA.--83.4 $mi^2$ (216.0 $km^2$).

PERIOD OF RECORD.--June 1967 to current year.

GAGE.--Water-stage recorder. Datum of gage is 7,421.7 ft (2,262.13 m).

REMARKS.--Records fair except those for December to February, which are poor.

AVERAGE DISCHARGE.--11 years, 5.26 $ft^3/s$ (0.150 $m^3/s$), 3,810 acre-ft/yr (4.70 $hm^3/yr$); median of yearly mean discharges, 3.0 $ft^3/s$ (0.085 $m^3/s$), 2,200 acre-ft/yr (2.7 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 439 $ft^3/s$ (12.4 $m^3/s$) Apr. 28, 1973, gage height, 9.72 ft (2.963 m), from rating curve extended above 190 $ft^3/s$ (5.4 $m^3/s$) on basis of slope-area measurement at gage height 8.96 ft (2.731 m); no flow at times during most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*), (from rating curve extended above 6.2 $ft^3/s$ or 0.18 $m^3/s$ on basis of theoretical computations of flow over weir) and peak discharges above base of 40 $ft^3/s$ (1.1 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|
| Mar. 31 | 2030 | *88 | 2.49 | 8.53 | 2.60 |
| Apr. 6 | 2330 | 56 | 1.58 | 8.27 | 2.52 |

No flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .14 | .25 | .37 | .37 | 1.9 | 14 | 65 | 2.6 | .54 | .16 | .00 | .00 |
| 2 | .13 | .31 | .43 | .19 | 1.4 | 11 | 44 | 3.1 | .54 | .09 | .00 | .00 |
| 3 | .13 | .31 | .49 | .25 | 1.0 | 7.1 | 44 | 3.8 | .54 | .03 | .07 | .00 |
| 4 | .16 | .25 | .49 | .17 | .72 | 4.6 | 44 | 3.3 | .54 | .01 | .05 | .00 |
| 5 | .19 | .25 | .49 | .17 | .72 | 8.7 | 40 | 1.9 | .49 | .00 | .03 | .00 |
| 6 | .49 | .37 | .37 | .19 | .72 | 9.8 | 40 | 2.2 | .60 | .00 | .00 | .00 |
| 7 | 1.7 | .60 | .31 | .25 | .72 | 7.8 | 40 | 2.6 | .60 | .00 | .00 | .00 |
| 8 | 1.7 | .60 | .31 | .19 | .72 | 5.6 | 36 | 3.3 | .54 | .00 | .00 | .00 |
| 9 | 1.1 | .49 | .31 | .19 | .72 | 4.8 | 24 | 2.3 | .49 | .00 | .00 | .00 |
| 10 | .66 | .49 | .31 | .19 | .66 | 6.1 | 22 | 1.9 | .54 | .00 | .19 | .00 |
| 11 | .60 | .49 | .31 | .25 | .72 | 6.1 | 19 | 1.8 | .49 | .00 | .16 | .00 |
| 12 | .54 | .49 | .37 | .25 | .60 | 8.4 | 26 | 1.3 | .43 | .00 | .06 | .00 |
| 13 | .49 | .43 | .31 | .17 | .60 | 6.8 | 24 | 1.3 | .43 | .00 | .03 | .00 |
| 14 | .49 | .43 | .31 | .31 | .72 | 6.1 | 18 | 1.0 | .43 | .00 | .00 | .00 |
| 15 | .43 | .49 | .37 | .37 | 1.0 | 3.8 | 15 | .78 | .31 | .00 | .00 | .00 |
| 16 | .37 | .49 | .19 | .31 | .78 | 4.8 | 10 | .78 | .19 | .00 | .00 | .00 |
| 17 | .37 | .54 | .25 | .43 | .89 | 5.4 | 8.4 | .72 | .17 | .00 | .00 | .00 |
| 18 | .31 | .54 | .31 | .49 | .72 | 7.1 | 5.4 | .72 | .17 | .00 | .00 | .00 |
| 19 | .31 | .49 | .19 | .37 | .78 | 10 | 4.1 | .72 | .19 | .00 | .00 | .00 |
| 20 | .31 | .43 | .14 | .37 | .78 | 14 | 4.1 | .89 | .16 | .00 | .00 | .00 |
| 21 | .31 | .49 | .11 | .49 | 1.0 | 18 | 4.8 | .89 | .11 | .00 | .00 | .00 |
| 22 | .31 | .43 | .17 | .43 | 1.1 | 24 | 3.3 | .72 | .09 | .00 | .19 | .00 |
| 23 | .31 | .49 | .31 | .25 | 1.1 | 29 | 3.1 | .66 | .09 | .00 | .16 | .00 |
| 24 | .31 | .43 | .31 | .37 | 1.3 | 28 | 3.1 | .60 | .09 | .00 | .49 | .00 |
| 25 | .25 | .43 | .19 | .43 | 1.3 | 28 | 2.8 | .60 | .06 | .31 | .17 | .00 |
| 26 | .25 | .43 | .19 | .54 | 1.2 | 28 | 2.6 | .66 | .02 | .16 | .05 | .00 |
| 27 | .19 | .49 | .43 | .49 | 1.2 | 29 | 2.6 | .60 | .02 | .06 | .02 | .00 |
| 28 | .19 | .49 | .37 | .66 | 1.6 | 33 | 2.4 | .54 | .06 | .03 | .00 | .00 |
| 29 | .31 | .43 | .37 | .66 | --- | 36 | 2.2 | .54 | .31 | .00 | .00 | .00 |
| 30 | .43 | .43 | .43 | .78 | --- | 44 | 2.6 | .49 | .37 | .00 | .00 | .00 |
| 31 | .31 | --- | .31 | 1.6 | --- | 57 | --- | .54 | --- | .00 | .00 | --- |
| TOTAL | 13.79 | 13.28 | 9.82 | 12.18 | 26.67 | 506.0 | 562.5 | 43.85 | 9.61 | .85 | 1.67 | .00 |
| MEAN | .44 | .44 | .32 | .39 | .95 | 16.3 | 18.8 | 1.41 | .32 | .027 | .054 | .000 |
| MAX | 1.7 | .60 | .49 | 1.6 | 1.9 | 57 | 65 | 3.8 | .60 | .31 | .49 | .00 |
| MIN | .13 | .25 | .11 | .17 | .60 | 3.8 | 2.2 | .49 | .02 | .00 | .00 | .00 |
| AC-FT | 27 | 26 | 19 | 24 | 53 | 1000 | 1120 | 87 | 19 | 1.7 | 3.3 | .00 |

CAL YR 1977 TOTAL 244.21 MEAN .67 MAX 19 MIN .00 AC-FT 484
WTR YR 1978 TOTAL 1200.22 MEAN 3.29 MAX 65 MIN .00 AC-FT 2380

## 09383550 NUTRIOSO CREEK BELOW NELSON RESERVOIR, NEAR SPRINGERVILLE, AZ

LOCATION.--Lat 34°03'36", long 109°11'40", in SE¼NE¼ sec.29, T.8 N., R.30 E., Apache County, Hydrologic Unit 15020001, in Apache National Forest, on right bank about 200 ft (60 m) downstream from dam on Nelson Reservoir and 7 mi (11 km) southeast of Springerville.

DRAINAGE AREA.--86.8 $mi^2$ (224.8 $km^2$).

PERIOD OF RECORD.--July 1967 to current year.

GAGE.--Water-stage recorder. Datum of gage is 7,364.8 ft (2,244.79 m).

REMARKS.--Records good. Flow regulated by Nelson Reservoir, 200 ft (60 m) upstream, minor stock ponds, and a small lake in Nutrioso.

AVERAGE DISCHARGE.--11 years, 4.90 $ft^3/s$ (0.139 $m^3/s$), 3,550 acre-ft/yr (4.38 $hm^3/yr$); median of yearly mean discharges, 2.6 $ft^3/s$ (0.074 $m^3/s$), 1,900 acre-ft/yr (2.3 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 465 $ft^3/s$ (13.2 $m^3/s$) Apr. 29, 1973, gage height, 7.03 ft (2.143 m), from rating curve extended above 150 $ft^3/s$ (4.2 $m^3/s$) on basis of slope-area measurement at gage height 7.02 ft (2.140 m); no flow Dec. 10, 1967, Jan. 3, 1968, Sept. 11-13, 17, 18, 1968.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 63 $ft^3/s$ (1.78 $m^3/s$) Apr. 1, gage height, 5.89 ft (1.795 m); minimum daily, 0.07 $ft^3/s$ (0.002 $m^3/s$) Mar. 2-4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .10 | .12 | .10 | .11 | .12 | .09 | 53 | 1.9 | .11 | .11 | .11 | .10 |
| 2 | .10 | .10 | .11 | .11 | .11 | .07 | 35 | 2.1 | .11 | .10 | .11 | .10 |
| 3 | .10 | .10 | .11 | .11 | .12 | .07 | 30 | 3.9 | .11 | .10 | .10 | .10 |
| 4 | .11 | .10 | .11 | .11 | .12 | .07 | 32 | 3.9 | .11 | .09 | .10 | .10 |
| 5 | .10 | .11 | .11 | .11 | .12 | .09 | 25 | 3.5 | .15 | .09 | .10 | .10 |
| 6 | .11 | .11 | .11 | .11 | .11 | .08 | 27 | 1.6 | .15 | .10 | .10 | .10 |
| 7 | .11 | .11 | .11 | .12 | .11 | 5.5 | 29 | 2.2 | .15 | .10 | .10 | .11 |
| 8 | .10 | .10 | .11 | .12 | .11 | 8.5 | 26 | 2.5 | .15 | .10 | .11 | .11 |
| 9 | .10 | .11 | .11 | .12 | .11 | 8.2 | 21 | 3.1 | .15 | .10 | .12 | .10 |
| 10 | .10 | .11 | .11 | .12 | .11 | 8.5 | 19 | 2.3 | 3.3 | .10 | .11 | .09 |
| 11 | .10 | .11 | .11 | .12 | .11 | 8.8 | 16 | 2.5 | 5.2 | .10 | .13 | .09 |
| 12 | .09 | .11 | .11 | .11 | .11 | 9.6 | 18 | 5.8 | 5.0 | .10 | .11 | .09 |
| 13 | .09 | .10 | .11 | .11 | .10 | 9.6 | 19 | 3.7 | 4.9 | .09 | .11 | .09 |
| 14 | .09 | .10 | .11 | .12 | .10 | 8.5 | 16 | .55 | 4.9 | .09 | .11 | .10 |
| 15 | .09 | .09 | .11 | .12 | .10 | 7.5 | 13 | .22 | 4.7 | .09 | .11 | .10 |
| 16 | .09 | .09 | .11 | .11 | .10 | 7.5 | 10 | .22 | 1.8 | .09 | .10 | .11 |
| 17 | .10 | .09 | .11 | .12 | .10 | 7.8 | 8.0 | .20 | .14 | .09 | .10 | .11 |
| 18 | .10 | .10 | .12 | .12 | .10 | 8.5 | 6.7 | .18 | .15 | .09 | .10 | .10 |
| 19 | .09 | .10 | .12 | .12 | .10 | 10 | 5.0 | .18 | .14 | .10 | .10 | .10 |
| 20 | .09 | .10 | .12 | .12 | .10 | 14 | 4.2 | .18 | .15 | .10 | .10 | .10 |
| 21 | .10 | .11 | .12 | .12 | .10 | 18 | 4.7 | .16 | .14 | .10 | .10 | .11 |
| 22 | .10 | .11 | .12 | .14 | .11 | 24 | 3.7 | .16 | .14 | .10 | .10 | .11 |
| 23 | .10 | .13 | .11 | .12 | .11 | 29 | 3.2 | .16 | .14 | .10 | .10 | .11 |
| 24 | .10 | .11 | .11 | .11 | .10 | 27 | 3.0 | .14 | .14 | .12 | .10 | .10 |
| 25 | .10 | .11 | .10 | .11 | .10 | 27 | 3.0 | .14 | .14 | .11 | .10 | .11 |
| 26 | .10 | .11 | .10 | .11 | .09 | 26 | 3.3 | .12 | .15 | .11 | .10 | .10 |
| 27 | .10 | .11 | .10 | .11 | .10 | 30 | 1.6 | .12 | .15 | .10 | .10 | .11 |
| 28 | .12 | .13 | .10 | .10 | .09 | 30 | 1.5 | .12 | .14 | .10 | .10 | .11 |
| 29 | .12 | .13 | .10 | .10 | --- | 30 | 1.6 | .12 | .13 | .10 | .10 | .11 |
| 30 | .12 | .11 | .11 | .10 | --- | 32 | 1.6 | .11 | .15 | .10 | .10 | .11 |
| 31 | .12 | --- | .11 | .10 | --- | 40 | --- | .11 | --- | .11 | .10 | --- |
| TOTAL | 3.14 | 3.22 | 3.40 | 3.53 | 2.96 | 435.97 | 440.1 | 42.19 | 32.81 | 3.08 | 3.23 | 3.08 |
| MEAN | .10 | .11 | .11 | .11 | .11 | 14.1 | 14.7 | 1.36 | 1.09 | .099 | .10 | .10 |
| MAX | .12 | .13 | .12 | .14 | .12 | 40 | 53 | 5.8 | 5.2 | .12 | .13 | .11 |
| MIN | .09 | .09 | .10 | .10 | .09 | .07 | 1.5 | .11 | .11 | .09 | .10 | .09 |
| AC-FT | 6.2 | 6.4 | 6.7 | 7.0 | 5.9 | 865 | 873 | 84 | 65 | 6.1 | 6.4 | 6.1 |

CAL YR 1977 TOTAL 147.79 MEAN .40 MAX 8.2 MIN .08 AC-FT 293
WTR YR 1978 TOTAL 976.71 MEAN 2.68 MAX 53 MIN .07 AC-FT 1940

## 09384000 LITTLE COLORADO RIVER ABOVE LYMAN LAKE, NEAR ST. JOHNS, AZ

LOCATION (REVISED).--Lat 34°18'52", long 109°21'42", in SW¼SE¼ sec.27, T.11 N., R.28 E., Apache County, Hydrologic Unit 15020001, on left bank 0.75 mi (1.2 km) downstream from Coyote Creek, 6 mi (9.6 km) upstream from Lyman Dam, and 15 mi (24.1 km) south of St. Johns. Prior to Dec. 7, 1976, at site 0.4 mi (0.6 km) downstream.

DRAINAGE AREA.--747 $mi^2$ (1,935 $km^2$).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1940 to current year. Prior to October 1975 published as "above Lyman Reservoir."

GAGE.--Water-stage recorder. Altitude of gage is 6,010 ft (1,832 m), from topographic map. Prior to December 7, 1976, water-stage recorder at site 0.4 mi (0.6 km) downstream at datum approximately 20 ft (6.1 m) lower. See WSP 1313 for history of changes prior to 1950.

REMARKS.--Records fair. Flow regulated by many small reservoirs—combined capacity, about 15,500 acre-ft (19.1 $hm^3$). Diversions for irrigation of about 6,700 acres (27.1 $km^2$) above station.

AVERAGE DISCHARGE.--38 years, 20.6 $ft^3/s$ (0.583 $m^3/s$), 14,920 acre-ft/yr (18.4 $hm^3/yr$); median of yearly mean discharges, 15 $ft^3/s$ (0.42 $m^3/s$), 10,900 acre-ft/yr (13 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,000 $ft^3/s$ (453 $m^3/s$) July 25, 1940, gage height, 17.1 ft (5.21 m), datum then in use, from floodmarks, by slope-area measurement of peak flow and reservoir inflow studies; maximum gage height, 18.6 ft (5.67 m), Sept. 12, 1975, at previous site (from graph recorded to 18.4 ft or 5.61 m); no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 389 $ft^3/s$ (11.0 $m^3/s$) Aug. 1, gage height, 4.82 ft (1.469 m), no peak above base of 400 $ft^3/s$ (11 $m^3/s$); minimum daily, 0.90 $ft^3/s$ (0.025 $m^3/s$) July 22, 23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 3.3 | 4.2 | 4.7 | 6.0 | 9.3 | 11 | 187 | 2.0 | 2.6 | 3.2 | 87 | 2.9 |
| 2 | 3.6 | 4.9 | 4.7 | 5.6 | 9.3 | 29 | 214 | 1.4 | 2.9 | 2.4 | 25 | 2.2 |
| 3 | 3.2 | 4.0 | 5.1 | 5.6 | 7.8 | 26 | 191 | 1.4 | 3.3 | 2.4 | 17 | 2.3 |
| 4 | 3.3 | 3.6 | 5.1 | 5.8 | 7.1 | 20 | 197 | 1.4 | 2.5 | 2.3 | 6.9 | 2.2 |
| 5 | 3.3 | 3.6 | 5.1 | 5.6 | 6.7 | 15 | 196 | 1.4 | 1.3 | 2.3 | 15 | 2.1 |
| 6 | 6.2 | 3.7 | 5.1 | 5.4 | 7.3 | 14 | 206 | 1.8 | 1.7 | 2.3 | 8.5 | 1.8 |
| 7 | 9.0 | 3.7 | 4.9 | 5.4 | 7.3 | 14 | 209 | 2.0 | 1.2 | 2.5 | 6.7 | 1.6 |
| 8 | 7.8 | 4.9 | 5.3 | 5.4 | 7.1 | 12 | 202 | 2.0 | 1.3 | 2.3 | 7.1 | 1.5 |
| 9 | 5.3 | 4.9 | 4.7 | 5.4 | 6.9 | 11 | 164 | 2.0 | 2.2 | 2.5 | 7.6 | 1.5 |
| 10 | 4.7 | 5.1 | 4.5 | 5.6 | 6.9 | 12 | 154 | 1.7 | 3.2 | 1.7 | 6.7 | 1.4 |
| 11 | 4.0 | 4.7 | 5.1 | 5.6 | 6.9 | 12 | 143 | 1.6 | 3.3 | 1.8 | 6.9 | 1.2 |
| 12 | 3.4 | 4.9 | 4.7 | 5.6 | 6.9 | 12 | 139 | 1.5 | 2.9 | 1.5 | 6.2 | 1.2 |
| 13 | 4.5 | 4.9 | 4.7 | 5.4 | 8.5 | 13 | 151 | 1.5 | 3.2 | 1.7 | 7.1 | 1.2 |
| 14 | 3.4 | 5.1 | 4.7 | 5.1 | 8.5 | 14 | 145 | 1.6 | 4.0 | 1.4 | 6.7 | 1.2 |
| 15 | 3.2 | 5.1 | 5.1 | 5.4 | 9.3 | 12 | 139 | 1.7 | 4.0 | 1.3 | 6.0 | 1.7 |
| 16 | 3.7 | 5.1 | 4.7 | 5.3 | 8.8 | 11 | 125 | 2.9 | 4.5 | 1.2 | 4.7 | 1.9 |
| 17 | 3.7 | 5.1 | 4.5 | 5.8 | 8.3 | 11 | 100 | 2.9 | 6.5 | 1.1 | 3.6 | 2.3 |
| 18 | 3.6 | 5.1 | 5.6 | 7.1 | 8.0 | 11 | 50 | 4.2 | 5.6 | 1.0 | 3.7 | 1.8 |
| 19 | 3.9 | 4.9 | 5.3 | 7.8 | 7.8 | 11 | 25 | 4.9 | 3.7 | 1.0 | 32 | 1.7 |
| 20 | 3.4 | 4.9 | 4.7 | 7.6 | 9.0 | 14 | 15 | 3.2 | 3.4 | 1.0 | 12 | 1.6 |
| 21 | 3.2 | 4.7 | 4.5 | 7.8 | 9.0 | 19 | 10 | 3.4 | 4.5 | 1.0 | 25 | 1.5 |
| 22 | 4.5 | 4.7 | 5.8 | 6.9 | 9.0 | 27 | 9.0 | 3.0 | 3.9 | .90 | 17 | 1.5 |
| 23 | 4.7 | 4.9 | 5.8 | 7.1 | 9.3 | 51 | 8.0 | 2.5 | 3.9 | .90 | 9.0 | 1.6 |
| 24 | 4.4 | 5.1 | 5.8 | 7.1 | 8.8 | 57 | 7.0 | 2.4 | 4.7 | 1.0 | 8.5 | 1.7 |
| 25 | 4.7 | 5.3 | 5.6 | 6.0 | 8.3 | 58 | 6.0 | 2.0 | 3.2 | 1.0 | 7.8 | 1.8 |
| 26 | 5.0 | 5.3 | 5.3 | 6.9 | 9.0 | 69 | 5.0 | 2.5 | 3.0 | 1.2 | 7.1 | 1.6 |
| 27 | 5.4 | 5.1 | 6.2 | 6.7 | 9.3 | 94 | 4.0 | 2.5 | 2.5 | 1.4 | 8.0 | 2.3 |
| 28 | 4.4 | 4.9 | 6.2 | 7.3 | 9.8 | 101 | 3.0 | 2.9 | 2.7 | 1.3 | 6.5 | 1.7 |
| 29 | 4.5 | 4.7 | 6.7 | 7.8 | --- | 111 | 2.0 | 2.5 | 2.7 | 1.2 | 5.3 | 1.5 |
| 30 | 4.5 | 4.5 | 6.2 | 8.5 | --- | 127 | 2.0 | 3.3 | 2.5 | 1.2 | 5.1 | 1.0 |
| 31 | 4.4 | --- | 6.5 | 9.6 | --- | 154 | --- | 3.6 | --- | 1.3 | 3.7 | --- |
| TOTAL | 136.2 | 141.6 | 162.9 | 198.2 | 230.2 | 1153 | 3008.0 | 73.7 | 96.9 | 49.30 | 379.4 | 51.5 |
| MEAN | 4.39 | 4.72 | 5.25 | 6.39 | 8.22 | 37.2 | 100 | 2.38 | 3.23 | 1.59 | 12.2 | 1.72 |
| MAX | 9.0 | 5.3 | 6.7 | 9.6 | 9.8 | 154 | 214 | 4.9 | 6.5 | 3.2 | 87 | 2.9 |
| MIN | 3.2 | 3.6 | 4.5 | 5.1 | 6.7 | 11 | 2.0 | 1.4 | 1.2 | .90 | 3.6 | 1.0 |
| AC-FT | 270 | 281 | 323 | 393 | 457 | 2290 | 5970 | 146 | 192 | 98 | 753 | 102 |

CAL YR 1977 TOTAL 2934.50 MEAN 8.04 MAX 112 MIN .50 AC-FT 5820
WTR YR 1978 TOTAL 5680.90 MEAN 15.6 MAX 214 MIN .90 AC-FT 11270

09384000 LITTLE COLORADO RIVER ABOVE LYMAN LAKE, NEAR ST. JOHNS, AZ--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--January 1976 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | TUR-BID-ITY (JTU) | OXYGEN, DIS-SOLVED (MG/L) | COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 11... | 1630 | 3.0 | 600 | 8.5 | 18.0 | 200 | 7.0 | 300 | 240 | 0 | 53 | 27 |
| NOV | | | | | | | | | | | | |
| 08... | 1500 | 4.0 | 715 | 8.6 | 10.0 | 40 | 10.4 | 45 | 260 | 0 | 58 | 29 |
| DEC | | | | | | | | | | | | |
| 05... | 1400 | 5.0 | 660 | 9.2 | 13.0 | 10 | 8.9 | 7 | 290 | 0 | 59 | 35 |
| JAN | | | | | | | | | | | | |
| 11... | 1230 | 6.3 | 640 | 8.0 | 8.0 | 8 | 9.8 | -- | 260 | 0 | 53 | 30 |
| FEB | | | | | | | | | | | | |
| 15... | 1300 | 8.5 | 520 | 8.0 | 9.0 | 90 | 10.0 | 2 | 230 | 0 | 53 | 23 |
| MAR | | | | | | | | | | | | |
| 16... | 0900 | 14 | 500 | -- | 3.0 | 20 | 10.0 | 39 | 190 | 0 | 45 | 20 |
| APR | | | | | | | | | | | | |
| 19... | 1600 | 50 | 215 | 8.1 | 16.0 | 40 | 7.7 | 115 | 92 | 0 | 23 | 8.4 |
| MAY | | | | | | | | | | | | |
| 10... | 1435 | 30 | 670 | 8.3 | 24.0 | -- | 7.8 | 55 | 280 | 0 | 65 | 28 |
| JUN | | | | | | | | | | | | |
| 08... | 1130 | 1.5 | 700 | 8.3 | 25.0 | 4 | 7.6 | 47 | 280 | 0 | 59 | 32 |
| JUL | | | | | | | | | | | | |
| 12... | 1100 | 1.4 | 625 | 8.5 | 22.0 | -- | 8.7 | 160 | 250 | 0 | 51 | 30 |
| AUG | | | | | | | | | | | | |
| 17... | 1200 | .75 | 590 | 8.4 | 24.0 | -- | 8.2 | 16 | 230 | 0 | 52 | 25 |
| SEP | | | | | | | | | | | | |
| 13... | 1200 | 1.0 | 640 | 7.6 | 24.0 | 10 | 9.5 | 37 | 260 | 0 | 55 | 30 |

| DATE | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | BICAR-BONATE (MG/L AS HCO3) | CAR-BONATE (MG/L AS CO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER AC-FT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 11... | 45 | 1.3 | 4.7 | 350 | 0 | 21 | 14 | .5 | 24 | 353 | 362 | .48 |
| NOV | | | | | | | | | | | | |
| 08... | 53 | 1.4 | 3.3 | 390 | 4 | 29 | 18 | .4 | 20 | 392 | 407 | .53 |
| DEC | | | | | | | | | | | | |
| 05... | 52 | 1.3 | 3.8 | 390 | 0 | 25 | 20 | .3 | 15 | 386 | 403 | .53 |
| JAN | | | | | | | | | | | | |
| 11... | 54 | 1.5 | 3.8 | 370 | 0 | 26 | 22 | .1 | 8.4 | 388 | 380 | .53 |
| FEB | | | | | | | | | | | | |
| 15... | 40 | 1.2 | 2.6 | 320 | 0 | 20 | 18 | .4 | 18 | 311 | 334 | .42 |
| MAR | | | | | | | | | | | | |
| 16... | 36 | 1.1 | 2.3 | 280 | -- | 17 | 12 | .3 | 18 | 282 | 290 | .38 |
| APR | | | | | | | | | | | | |
| 19... | 12 | .5 | 2.1 | 130 | 0 | 8.1 | 4.4 | .1 | 19 | 139 | 142 | .19 |
| MAY | | | | | | | | | | | | |
| 10... | 57 | 1.5 | 4.6 | 400 | 0 | 33 | 19 | .2 | 11 | 415 | 415 | .56 |
| JUN | | | | | | | | | | | | |
| 08... | 59 | 1.5 | 4.5 | 360 | 0 | 34 | 15 | .2 | 22 | 386 | 403 | .53 |
| JUL | | | | | | | | | | | | |
| 12... | 49 | 1.3 | 3.6 | 350 | 0 | 28 | 18 | .5 | 24 | 348 | 377 | .47 |
| AUG | | | | | | | | | | | | |
| 17... | 45 | 1.3 | 3.8 | 340 | 8 | 21 | 13 | .3 | 25 | 356 | 361 | .48 |
| SEP | | | | | | | | | | | | |
| 13... | 48 | 1.3 | 3.6 | 350 | 0 | 29 | 20 | .5 | 23 | 366 | 382 | .50 |

09384000 LITTLE COLORADO RIVER ABOVE LYMAN LAKE, NEAR ST. JOHNS, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) | NITROGEN, AMMONIA TOTAL (MG/L AS N) | NITROGEN, AMMONIA DISSOLVED (MG/L AS N) | NITROGEN, ORGANIC TOTAL (MG/L AS N) | NITROGEN, ORGANIC DISSOLVED (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) |
|---|---|---|---|---|---|---|---|
| OCT | | | | | | | |
| 11... | .01 | -- | -- | -- | -- | -- | .43 |
| NOV | | | | | | | |
| 08... | .01 | -- | -- | -- | -- | -- | .36 |
| DEC | | | | | | | |
| 05... | .02 | .05 | -- | -- | -- | -- | .84 |
| JAN | | | | | | | |
| 11... | .03 | .03 | -- | -- | -- | -- | .27 |
| FEB | | | | | | | |
| 15... | .16 | .08 | .00 | .01 | .51 | .18 | .51 |
| MAR | | | | | | | |
| 16... | .15 | .13 | -- | -- | -- | -- | .62 |
| APR | | | | | | | |
| 19... | .12 | .11 | -- | -- | -- | -- | .61 |
| MAY | | | | | | | |
| 10... | .00 | .01 | -- | -- | -- | -- | .30 |
| JUN | | | | | | | |
| 08... | .01 | .01 | -- | -- | -- | -- | .38 |
| JUL | | | | | | | |
| 12... | .02 | .05 | -- | -- | -- | -- | .79 |
| AUG | | | | | | | |
| 17... | .01 | .00 | -- | -- | -- | -- | .47 |
| SEP | | | | | | | |
| 13... | .01 | .02 | -- | -- | -- | -- | 68 |

| DATE | NITROGEN, NH4 + ORG. SUSP. TOTAL (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N) | NITROGEN, NH4 + ORG. TOT IN BOT MAT (MG/KG AS N) | NITROGEN, TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P) |
|---|---|---|---|---|---|---|
| OCT | | | | | | |
| 11... | -- | -- | -- | .44 | .21 | -- |
| NOV | | | | | | |
| 08... | -- | -- | -- | .37 | .18 | -- |
| DEC | | | | | | |
| 05... | -- | -- | -- | .86 | .18 | .07 |
| JAN | | | | | | |
| 11... | -- | -- | -- | .30 | .29 | .11 |
| FEB | | | | | | |
| 15... | .32 | .19 | -- | .67 | .45 | .20 |
| MAR | | | | | | |
| 16... | -- | -- | -- | .77 | .33 | .22 |
| APR | | | | | | |
| 19... | -- | -- | -- | .73 | .20 | .07 |
| MAY | | | | | | |
| 10... | -- | -- | -- | .30 | .13 | .01 |
| JUN | | | | | | |
| 08... | -- | -- | 80 | .39 | .01 | .00 |
| JUL | | | | | | |
| 12... | -- | -- | -- | .81 | .10 | .03 |
| AUG | | | | | | |
| 17... | -- | -- | -- | .48 | .09 | .03 |
| SEP | | | | | | |
| 13... | -- | -- | -- | .69 | .08 | .03 |

09384000 LITTLE COLORADO RIVER ABOVE LYMAN LAKE, NEAR ST. JOHNS, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | ARSENIC TOTAL (UG/L AS AS) | ARSENIC TOTAL IN BOTTOM MATERIAL (UG/G AS AS) | BARIUM, TOTAL RECOVERABLE (UG/L AS BA) | BARIUM, RECOV. FM BOTTOM MATERIAL (UG/G AS BA) | BORON, TOTAL RECOVERABLE (UG/L AS B) | BORON, DISSOLVED (UG/L AS B) | CADMIUM TOTAL RECOVERABLE (UG/L AS CD) | CADMIUM RECOV. FM BOTTOM MATERIAL (UG/G AS CD) | CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 11... | 3 | -- | 400 | -- | 170 | 110 | 10 | -- | 35 |
| NOV | | | | | | | | | |
| 08... | 2 | -- | 800 | -- | 110 | 90 | 0 | -- | 8 |
| DEC | | | | | | | | | |
| 05... | 2 | -- | 100 | -- | 150 | 90 | 1 | -- | 0 |
| JAN | | | | | | | | | |
| 11... | 2 | -- | 100 | -- | 140 | 100 | 1 | -- | 0 |
| FEB | | | | | | | | | |
| 15... | 1 | -- | 100 | -- | 110 | 80 | 0 | -- | 0 |
| MAR | | | | | | | | | |
| 16... | 2 | -- | 0 | -- | 130 | 60 | 2 | -- | 10 |
| APR | | | | | | | | | |
| 19... | 3 | -- | 300 | -- | 100 | 30 | 1 | -- | 0 |
| MAY | | | | | | | | | |
| 10... | 1 | -- | 200 | -- | 170 | 100 | 2 | -- | 0 |
| JUN | | | | | | | | | |
| 08... | 2 | 6 | 200 | 60 | 200 | 100 | 0 | 0 | 0 |
| JUL | | | | | | | | | |
| 12... | 0 | -- | 300 | -- | 130 | 100 | 0 | -- | 0 |
| AUG | | | | | | | | | |
| 17... | 3 | -- | 400 | -- | 120 | 90 | 1 | -- | 10 |
| SEP | | | | | | | | | |
| 13... | 2 | -- | 100 | -- | 140 | 120 | 4 | -- | 0 |

| DATE | CHROMIUM, RECOV. FM BOTTOM MATERIAL (UG/G) | COPPER, TOTAL RECOVERABLE (UG/L AS CU) | COPPER, RECOV. FM BOTTOM MATERIAL (UG/G AS CU) | IRON, TOTAL RECOVERABLE (UG/L AS FE) | IRON, DISSOLVED (UG/L AS FE) | LEAD, TOTAL RECOVERABLE (UG/L AS PB) | LEAD, RECOV. FM BOTTOM MATERIAL (UG/G AS PB) | MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) | MANGANESE, DISSOLVED (UG/L AS MN) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 11... | -- | 10 | -- | 11000 | 90 | <100 | -- | 260 | 20 |
| NOV | | | | | | | | | |
| 08... | -- | 6 | -- | 1400 | 30 | 7 | -- | 140 | 30 |
| DEC | | | | | | | | | |
| 05... | -- | 6 | -- | 590 | 20 | 5 | -- | 70 | 20 |
| JAN | | | | | | | | | |
| 11... | -- | 3 | -- | 450 | 50 | 8 | -- | 70 | 30 |
| FEB | | | | | | | | | |
| 15... | -- | 11 | -- | 4800 | 50 | 21 | -- | 190 | 20 |
| MAR | | | | | | | | | |
| 16... | -- | 4 | -- | 2000 | 0 | 4 | -- | 140 | 10 |
| APR | | | | | | | | | |
| 19... | -- | 10 | -- | 2800 | 10 | 6 | -- | 120 | 0 |
| MAY | | | | | | | | | |
| 10... | -- | 5 | -- | 720 | 30 | 30 | -- | 90 | 40 |
| JUN | | | | | | | | | |
| 08... | 2 | 4 | 50 | 420 | 0 | 5 | 8 | 60 | 20 |
| JUL | | | | | | | | | |
| 12... | -- | 8 | -- | 680 | 50 | 4 | -- | 110 | 30 |
| AUG | | | | | | | | | |
| 17... | -- | 6 | -- | 310 | 20 | 5 | -- | 60 | 30 |
| SEP | | | | | | | | | |
| 13... | -- | 7 | -- | 690 | 10 | 10 | -- | 90 | 30 |

< Actual value is known to be less than value shown.

09384000 LITTLE COLORADO RIVER ABOVE LYMAN LAKE, NEAR ST. JOHNS, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | MERCURY TOTAL RECOVERABLE (UG/L AS HG) | MERCURY RECOV. FM BOTTOM MATERIAL (UG/L AS HG) | SELENIUM, TOTAL (UG/L AS SE) | SELENIUM, TOTAL IN BOTTOM MATERIAL (UG/G) | SILVER, TOTAL RECOVERABLE (UG/L AS AG) | SILVER, RECOV. FM BOTTOM MATERIAL (UG/G AS AG) | ZINC, TOTAL RECOVERABLE (UG/L AS ZN) | ZINC, RECOV. FM BOTTOM MATERIAL (UG/G AS ZN) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 11... | .0 | -- | 0 | -- | <10 | -- | 40 | -- |
| NOV | | | | | | | | |
| 08... | .0 | -- | 0 | -- | 0 | -- | 40 | -- |
| DEC | | | | | | | | |
| 05... | .0 | -- | 0 | -- | 0 | -- | 60 | -- |
| JAN | | | | | | | | |
| 11... | .0 | -- | 0 | -- | 0 | -- | 30 | -- |
| FEB | | | | | | | | |
| 15... | .0 | -- | 0 | -- | 1 | -- | 30 | -- |
| MAR | | | | | | | | |
| 16... | 2.0 | -- | 0 | -- | 1 | -- | 30 | -- |
| APR | | | | | | | | |
| 19... | .0 | -- | 0 | -- | 0 | -- | 20 | -- |
| MAY | | | | | | | | |
| 10... | .0 | -- | 0 | -- | 0 | -- | 20 | -- |
| JUN | | | | | | | | |
| 08... | .1 | .0 | 7 | 0 | 0 | 2 | 10 | 8 |
| JUL | | | | | | | | |
| 12... | .0 | -- | 0 | -- | 0 | -- | 20 | -- |
| AUG | | | | | | | | |
| 17... | .0 | -- | 0 | -- | 0 | -- | 10 | -- |
| SEP | | | | | | | | |
| 13... | .0 | -- | 0 | -- | 0 | -- | 20 | -- |

| DATE | CARBON, ORGANIC TOTAL (MG/L AS C) | CYANIDE TOTAL (MG/L AS CN) | CYANIDE TOTAL IN BOTTOM MATERIAL (UG/G AS CN) | PHENOLS (UG/L) | PHYTOPLANKTON, TOTAL (CELLS PER ML) | PERIPHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M | PERIPHYTON BIOMASS ASH WEIGHT G/SQ M |
|---|---|---|---|---|---|---|---|
| OCT | | | | | | | |
| 11... | 6.4 | .00 | -- | 5 | -- | -- | -- |
| NOV | | | | | | | |
| 08... | 3.3 | .00 | -- | 4 | -- | -- | -- |
| DEC | | | | | | | |
| 05... | 3.8 | .00 | -- | 5 | -- | -- | -- |
| JAN | | | | | | | |
| 11... | 3.3 | .00 | -- | 1 | -- | -- | -- |
| FEB | | | | | | | |
| 15... | 5.9 | .00 | -- | 2 | -- | -- | -- |
| MAR | | | | | | | |
| 16... | 7.6 | .00 | -- | 0 | -- | -- | -- |
| APR | | | | | | | |
| 19... | 6.4 | .00 | -- | 4 | -- | -- | -- |
| MAY | | | | | | | |
| 10... | 4.6 | .00 | -- | 0 | -- | -- | -- |
| JUN | | | | | | | |
| 08... | 3.1 | .00 | 0 | 1 | 73 | 28.2 | 25.0 |
| JUL | | | | | | | |
| 12... | 5.3 | .00 | -- | 1 | -- | -- | -- |
| AUG | | | | | | | |
| 17... | 5.3 | .00 | -- | 2 | -- | -- | -- |
| SEP | | | | | | | |
| 13... | 5.6 | .00 | -- | 2 | -- | -- | -- |

< Actual value is known to be less than value shown.

09384000 LITTLE COLORADO RIVER ABOVE LYMAN LAKE, NEAR ST. JOHNS, AZ--Continued

PHYTOPLANKTON

| | |
|---|---|
| DATE | JUN 8,78 |
| TIME | 1130 |
| TOTAL CELLS/ML | 73 |
| DIVERSITY: DIVISION | 0.7 |
| .CLASS | 0.7 |
| ..ORDER | 0.7 |
| ...FAMILY | 1.4 |
| ....GENUS | 1.4 |

| ORGANISM | CELLS /ML | PER-CENT |
|---|---|---|
| CHRYSOPHYTA | | |
| .BACILLARIOPHYCEAE | | |
| ..PENNALES | | |
| ...NAVICULACEAE | | |
| ....NAVICULA | 44# | 60 |
| ...NITZSCHIACEAE | | |
| ....NITZSCHIA | 15# | 20 |
| EUGLENOPHYTA (EUGLENOIDS) | | |
| .EUGLENOPHYCEAE | | |
| ..EUGLENALES | | |
| ...EUGLENACEAE | | |
| ....PHACUS | 15# | 20 |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

## 09384500 LYMAN LAKE NEAR ST. JOHNS, AZ

LOCATION.--Lat 34°22'06", long 109°22'55", in SW¼NE¼ sec.9, T.11 N., R.28 E., Apache County, Hydrologic Unit 15020001, in control tower of Lyman Dam on Little Colorado River, 9.5 mi (15.3 km) south of St. Johns.

DRAINAGE AREA.--790 $mi^2$ (2,046 $km^2$).

PERIOD OF RECORD.--May 1940 to September 1947; April 1948 to September 1975 (daily contents), October 1975 to September 1978 (daily gage heights). Discontinued. Prior to October 1975 published as "Lyman Reservoir near St. Johns."

GAGE.--Water-stage recorder. Datum of gage is 5,923.7 ft (1,805.54 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Lake is formed by an earthfill and rockfill dam, rubble faced; dam completed and storage began in 1920; original dam washed out Apr. 14, 1915. Crest of permanent spillway raised from 50.0 ft (15.24 m) to 56.8 ft (17.31 m) during March and April 1949. Capacity (based on 1953 studies), 30,600 acre-ft (37.7 $hm^3$) between gage heights 20.0 ft (6.10 m)—bottom of Lyman Canal—and 56.8 ft (17.31 m)—average elevation of spillway crest. Contents between gage heights 14.0 ft (4.27 m)—12.0 ft (3.66 m) above sill of outlet gates—and 20.0 ft (6.10 m), about 800 acre-ft (1.0 $hm^3$), not available for release to Lyman Canal but can be released to river channel. Due to silt deposition in the lake, contents cannot be determined until new capacity tables can be prepared. Water is used for irrigation in vicinity of St. Johns.

EXTREMES FOR PERIOD OF RECORD.--1940-75: Maximum contents, 32,200 acre-ft (39.7 $hm^3$) May 6, 1973, gage height, 57.93 ft (17.657 m); no storage at times in recent years.

EXTREMES FOR CURRENT YEAR.--Maximum gage height observed, 42.80 ft (13.045 m) Apr. 28; minimum, 31.51 ft (9.604 m) Sept. 23.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 31.92 | 32.06 | 32.11 | 32.30 | 32.82 | 33.44 | 37.60 | --- | 40.48 | 37.57 | 34.65 | 32.72 |
| 2 | 31.91 | 32.05 | 32.11 | 32.33 | 32.84 | 33.57 | --- | 42.10 | 40.39 | 37.44 | 34.62 | 32.67 |
| 3 | 31.89 | 32.04 | 32.11 | 32.34 | 32.86 | 33.65 | 38.10 | --- | 40.37 | 37.32 | 34.56 | 32.62 |
| 4 | 31.89 | 32.03 | 32.11 | 32.36 | 32.88 | 33.68 | 38.65 | --- | 40.32 | 37.20 | 34.48 | 32.57 |
| 5 | 31.87 | 32.02 | 32.11 | 32.37 | 32.90 | 33.75 | --- | --- | 40.15 | 37.16 | 34.34 | 32.52 |
| 6 | 32.16 | 32.03 | 32.11 | 32.37 | 32.90 | 33.78 | 38.84 | 41.94 | 40.08 | 37.02 | 34.29 | 32.46 |
| 7 | 32.14 | 32.04 | 32.11 | 32.38 | 32.92 | 33.81 | --- | --- | 40.00 | 36.93 | 34.19 | 32.37 |
| 8 | 32.15 | 32.05 | 32.11 | 32.38 | 32.95 | 33.84 | --- | --- | 39.89 | 36.83 | 34.10 | 32.21 |
| 9 | 32.18 | 32.05 | 32.11 | --- | 32.96 | 33.89 | --- | 41.80 | 39.77 | 36.75 | 33.99 | 32.14 |
| 10 | 32.15 | 32.06 | 32.11 | --- | 32.99 | 33.89 | 39.65 | 41.90 | 39.70 | 36.74 | 33.96 | 32.02 |
| 11 | 32.15 | 32.06 | 32.12 | 32.37 | 32.99 | 33.90 | --- | --- | --- | 36.66 | 33.83 | 31.91 |
| 12 | 32.13 | 32.07 | 32.12 | 32.37 | 33.02 | 33.95 | --- | --- | --- | 36.51 | 33.82 | 31.88 |
| 13 | 32.12 | 32.08 | 32.12 | 32.38 | 33.04 | 33.96 | 41.59 | 41.26 | --- | 36.44 | 33.78 | 31.78 |
| 14 | 32.11 | 32.09 | 32.14 | 32.39 | 33.06 | 34.01 | 41.80 | --- | 39.30 | 36.31 | 33.72 | 31.69 |
| 15 | 32.10 | 32.09 | 32.16 | 32.40 | 33.08 | 34.03 | 42.00 | --- | 39.24 | 36.19 | 33.67 | 31.67 |
| 16 | 32.09 | 32.09 | 32.12 | 32.38 | 33.13 | 34.05 | --- | --- | 39.06 | 36.09 | 33.58 | 31.59 |
| 17 | 32.08 | 32.10 | 32.12 | 32.44 | 33.14 | 34.07 | --- | --- | 38.89 | 36.00 | 33.51 | 31.61 |
| 18 | 32.08 | 32.11 | 32.13 | 32.45 | 33.16 | 34.10 | 42.50 | 41.00 | 38.80 | 35.89 | 33.45 | 31.59 |
| 19 | 32.08 | 32.11 | 32.13 | 32.48 | 33.19 | 34.16 | --- | --- | 38.69 | 35.79 | 33.47 | 31.58 |
| 20 | 32.07 | 32.09 | 32.13 | 32.51 | 33.21 | 34.15 | --- | --- | 38.59 | 35.67 | 33.48 | 31.57 |
| 21 | 32.07 | 32.09 | 32.14 | 32.52 | 33.21 | 34.19 | --- | --- | 38.56 | 35.63 | 33.48 | 31.56 |
| 22 | 32.06 | 32.09 | 32.14 | 32.55 | 33.24 | --- | 42.10 | --- | 38.49 | 35.54 | 33.48 | 31.54 |
| 23 | 32.05 | 32.09 | 32.14 | 32.57 | 33.25 | 34.60 | --- | 40.80 | 38.42 | 35.44 | 33.47 | 31.51 |
| 24 | 32.04 | 32.09 | 32.17 | 32.59 | 33.27 | --- | --- | --- | 38.36 | 35.37 | 33.31 | 31.52 |
| 25 | 32.03 | 32.10 | 32.18 | 32.59 | 33.28 | --- | --- | --- | 38.32 | 35.27 | 33.21 | 31.54 |
| 26 | 32.03 | 32.10 | 32.19 | 32.61 | 33.29 | 35.10 | --- | --- | 38.15 | 35.18 | 33.16 | 31.53 |
| 27 | 32.02 | 32.10 | 32.22 | 32.63 | 33.30 | --- | --- | --- | 38.03 | 35.09 | 33.07 | 31.53 |
| 28 | 32.03 | 32.10 | 32.26 | 32.65 | 33.38 | 35.92 | 42.80 | 41.60 | 37.90 | 34.98 | 33.04 | 31.53 |
| 29 | 32.08 | 32.11 | 32.26 | 32.68 | --- | --- | --- | --- | 37.79 | 34.91 | 32.89 | 31.53 |
| 30 | 32.08 | 32.11 | 32.27 | 32.73 | --- | 36.66 | --- | --- | 37.72 | 34.80 | 32.81 | 31.53 |
| 31 | 32.08 | --- | 32.29 | 32.78 | --- | --- | --- | --- | --- | 34.67 | 32.80 | --- |
| MAX | 32.18 | 32.11 | 32.29 | 32.78 | 33.38 | 36.66 | 42.80 | 42.10 | 40.48 | 37.57 | 34.65 | 32.72 |
| MIN | 31.87 | 32.02 | 32.11 | 32.30 | 32.82 | 33.44 | 37.60 | 40.80 | 37.72 | 34.67 | 32.80 | 31.51 |

CAL YR 1977 MAX 45.17 MIN 31.82
WTR YR 1978 MAX 42.80 MIN 31.51

NOTE.--No gage-height record on days when no values are listed.

## 09385000 LYMAN CANAL BELOW LYMAN LAKE, NEAR ST. JOHNS, AZ

LOCATION.--Lat 34°22'05", long 109°22'55", in SW¼NE¼ sec.9, T.11 N., R.28 E., Apache County, Hydrologic Unit 1502002, on right bank 45 ft (14 m) downstream from outlet tunnel in Lyman Dam and 9.5 mi (15.3 km) south of St. Johns.

PERIOD OF RECORD.--June 1950 to June 1954, April 1955 to current year. Prior to October 1975 published as "below Lyman Reservoir, near St. Johns."

GAGE.--Water-stage recorder. Datum of gage is 5,943.4 ft (1,811.55 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Canal diverts water from Lyman Lake for irrigation of about 1,500 acres (6.07 $km^2$) in vicinity of St. Johns. No diversion between reservoir outlet and station. A feeder ditch 9 mi (14 km) downstream diverts up to 400 acre-ft/yr (0.493 $hm^3$/yr) from Lyman Canal to Little Reservoir.

AVERAGE DISCHARGE.--26 years (water years 1951-53, 1956-78), 11.5 $ft^3$/s (0.326 $m^3$/s), 8,330 acre-ft/yr (10.3 $hm^3$/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 74 $ft^3$/s (2.10 $m^3$/s) July 3-5, Aug. 8, 9, 1952; no flow for long periods in each year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 9.7 | 24 | 25 | 23 | 11 |
| 2 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 9.7 | 24 | 26 | 24 | 9.2 |
| 3 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 9.4 | 22 | 26 | 24 | 9.7 |
| 4 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 9.0 | 20 | 26 | 24 | 9.5 |
| 5 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 5.7 | 22 | 25 | 26 | 13 |
| 6 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 2.3 | 25 | 24 | 27 | 15 |
| 7 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .12 | 26 | 22 | 27 | 15 |
| 8 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .12 | 26 | 21 | 28 | 22 |
| 9 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .10 | 25 | 19 | 28 | 24 |
| 10 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .09 | 28 | 19 | 26 | 24 |
| 11 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 1.9 | 30 | 20 | 24 | 24 |
| 12 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 1.7 | 30 | 22 | 21 | 21 |
| 13 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 2.3 | 30 | 25 | 14 | 20 |
| 14 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 10 | 30 | 25 | 11 | 19 |
| 15 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 16 | 30 | 28 | 12 | 18 |
| 16 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 17 | 30 | 29 | 11 | .22 |
| 17 | .00 | .00 | .00 | .00 | .00 | .00 | 7.2 | 18 | 29 | 27 | 11 | .81 |
| 18 | .00 | .00 | .00 | .00 | .00 | .00 | 13 | 21 | 28 | 26 | 13 | .31 |
| 19 | .00 | .00 | .00 | .00 | .00 | .00 | 17 | 23 | 27 | 26 | 16 | .06 |
| 20 | .00 | .00 | .00 | .00 | .00 | .00 | 17 | 27 | 27 | 26 | 17 | .03 |
| 21 | .00 | .00 | .00 | .00 | .00 | .00 | 17 | 26 | 26 | 23 | 17 | .01 |
| 22 | .00 | .00 | .00 | .00 | .00 | .00 | 17 | 26 | 26 | 21 | 17 | .00 |
| 23 | .00 | .00 | .00 | .00 | .00 | .00 | 17 | 26 | 26 | 21 | 17 | .00 |
| 24 | .00 | .00 | .00 | .00 | .00 | .00 | 19 | 26 | 26 | 21 | 24 | .00 |
| 25 | .00 | .00 | .00 | .00 | .00 | .00 | 19 | 25 | 26 | 21 | 29 | .00 |
| 26 | .00 | .00 | .00 | .00 | .00 | .00 | 19 | 25 | 26 | 21 | 32 | .00 |
| 27 | .00 | .00 | .00 | .00 | .00 | .00 | 19 | 25 | 25 | 20 | 32 | .00 |
| 28 | .00 | .00 | .00 | .00 | .00 | .00 | 19 | 25 | 24 | 20 | 28 | .00 |
| 29 | .00 | .00 | .00 | .00 | --- | .00 | 18 | 25 | 24 | 20 | 23 | .00 |
| 30 | .00 | .00 | .00 | .00 | --- | .00 | 12 | 25 | 24 | 20 | 22 | .00 |
| 31 | .00 | --- | .00 | .00 | --- | .00 | --- | 25 | --- | 21 | 20 | --- |
| TOTAL | .00 | .00 | .00 | .00 | .00 | .00 | 230.20 | 463.13 | 786 | 716 | 668 | 255.84 |
| MEAN | .000 | .000 | .000 | .000 | .000 | .000 | 7.67 | 14.9 | 26.2 | 23.1 | 21.5 | 8.53 |
| MAX | .00 | .00 | .00 | .00 | .00 | .00 | 19 | 27 | 30 | 29 | 32 | 24 |
| MIN | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .09 | 20 | 19 | 11 | .00 |
| AC-FT | .00 | .00 | .00 | .00 | .00 | .00 | 457 | 919 | 1560 | 1420 | 1320 | 507 |

CAL YR 1977 TOTAL 4274.60 MEAN 11.7 MAX 38 MIN .00 AC-FT 8480
WTR YR 1978 TOTAL 3119.17 MEAN 8.55 MAX 32 MIN .00 AC-FT 6190

NOTE.--No gage-height record Dec. 23 to Jan. 3, Mar. 3 to Apr. 4.

## 09385500 LITTLE COLORADO RIVER BELOW LYMAN LAKE, NEAR ST. JOHNS, AZ

LOCATION.--Lat 34°22'05", long 109°22'56", in SW¼NE¼ sec.9, T.11 N., R.28 E., Apache County, Hydrologic Unit 150220002, on right bank 65 ft (20 m) downstream from outlet tunnel in Lyman Dam, and 9.5 mi (15.3 km) south of St. Johns.

DRAINAGE AREA.--790 $mi^2$ (2,046 $km^2$).

PERIOD OF RECORD.--April 1941 to June 1954, April 1955 to current year. Prior to October 1975 published as "below Lyman Reservoir, near St. Johns."

GAGE.--Water-stage recorder and concrete control for determination of quantity of water released to river channel. Datum of gage is 5,925.35 ft (1,806.047 m) National Geodetic Vertical Datum of 1929. Water-stage recorder on Lyman Lake for determination of flow in spillway channel 0.4 mi (0.6 km) north, in SW¼ sec.4, T.11 N., R.28 E.

REMARKS.--Records fair. Records show all water spilled and released from Lyman Lake to the river channel, but do not include flow diverted to Lyman Canal. (See sta 09385000.) No flow over Lyman Dam spillway this year. Since 1929 spill has occurred only during periods Apr. 8 to about May 6, 1932, Apr. 30 to May 13, 1941, Apr. 5-23, 1966, Apr. 29 to May 26, 1973. Except for periods of flow over spillway, flow is completely regulated by many reservoirs--combined capacity, 46,900 acre-ft (57.8 $hm^3$)--the largest of which is Lyman Lake. (See sta 09384500.) Diversions above station for irrigation of about 8,200 acres (33.2 $km^2$), including 1,500 acres (6.07 $km^2$) served by Lyman Canal. Flow past this station, supplemented by spring inflow downstream and feeder ditch diversions from Lyman Canal, used to irrigate an additional 2,000 acres (8.09 $km^2$) in vicinity of St. Johns.

AVERAGE DISCHARGE.--35 years (water years 1942-53, 1956-78), 3.18 $ft^3/s$ (0.090 $m^3/s$), 2,300 acre-ft/yr (2.84 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 603 $ft^3/s$ (17.1 $m^3/s$) May 8, 1941 (including 546 $ft^3/s$ or 15.5 $m^3/s$ of spilled water); no flow at times prior to 1960.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 7.2 $ft^3/s$ (0.20 $m^3/s$) May 3, June 9; minimum daily, 0.09 $ft^3/s$ (0.003 $m^3/s$) Oct. 18, 19.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .26 | .26 | .80 | .89 | .89 | .37 | .37 | 6.0 | 5.4 | 3.9 | 4.2 | 4.3 |
| 2 | .26 | .26 | .80 | .89 | .89 | .37 | .37 | 7.0 | 5.6 | 4.5 | 4.2 | 3.7 |
| 3 | .26 | .26 | .80 | .89 | 1.0 | .37 | .37 | 7.2 | 5.8 | 4.5 | 4.2 | 3.5 |
| 4 | .26 | .22 | .80 | .89 | .89 | .37 | .37 | 6.4 | 6.3 | 4.8 | 4.4 | 3.6 |
| 5 | .22 | .22 | .80 | .89 | .78 | .37 | .37 | 5.7 | 6.7 | 4.8 | 3.9 | 3.9 |
| 6 | .22 | .22 | .80 | .89 | .78 | .37 | .37 | 4.8 | 6.8 | 4.9 | 3.9 | 3.9 |
| 7 | .22 | .22 | .90 | .89 | .78 | .37 | .37 | 4.3 | 6.8 | 4.9 | 4.2 | 3.8 |
| 8 | .22 | .26 | .89 | 1.0 | .78 | .37 | .37 | 4.1 | 6.8 | 5.1 | 4.4 | 3.9 |
| 9 | .22 | .26 | .89 | .68 | .78 | .37 | .37 | 4.2 | 7.2 | 5.1 | 4.5 | 4.4 |
| 10 | .22 | .22 | .89 | .68 | .78 | .31 | .37 | 4.0 | 5.5 | 4.9 | 4.8 | 4.3 |
| 11 | .15 | .20 | .89 | .68 | .78 | .37 | .37 | 3.9 | 5.1 | 4.7 | 5.1 | 4.5 |
| 12 | .15 | .20 | .89 | .78 | .78 | .37 | .44 | 3.7 | 5.1 | 4.3 | 5.3 | 3.7 |
| 13 | .15 | .20 | .89 | .78 | .78 | .37 | .44 | 3.5 | 5.1 | 3.5 | 4.7 | 3.3 |
| 14 | .15 | .20 | .89 | .78 | .78 | .37 | .44 | 3.5 | 4.8 | 3.5 | 4.0 | 3.5 |
| 15 | .12 | .30 | .89 | .78 | .78 | .31 | .44 | 3.5 | 4.8 | 3.5 | 3.6 | 3.6 |
| 16 | .12 | .30 | .89 | .78 | .68 | .31 | .44 | 3.5 | 4.6 | 3.5 | 3.8 | 1.9 |
| 17 | .12 | .30 | .89 | .78 | .68 | .31 | 1.4 | 3.7 | 4.5 | 3.5 | 4.0 | 1.6 |
| 18 | .09 | .30 | .89 | .78 | .68 | .26 | 1.8 | 3.6 | 4.5 | 3.5 | 4.3 | 1.2 |
| 19 | .09 | .40 | .89 | .89 | .68 | .31 | 1.8 | 3.5 | 4.3 | 3.5 | 4.4 | .94 |
| 20 | .12 | .40 | .89 | .89 | .59 | .31 | 1.8 | 3.4 | 4.2 | 3.4 | 4.0 | .73 |
| 21 | .12 | .40 | .89 | .89 | .59 | .31 | 1.8 | 3.5 | 4.0 | 3.3 | 4.0 | .52 |
| 22 | .12 | .50 | .89 | .89 | .51 | .31 | 1.8 | 3.5 | 4.0 | 3.3 | 4.0 | .46 |
| 23 | .12 | .50 | .89 | .89 | .51 | .31 | 1.8 | 3.3 | 3.8 | 3.2 | 4.1 | .40 |
| 24 | .15 | .50 | .89 | .89 | .44 | .31 | 1.8 | 3.8 | 3.9 | 3.3 | 4.0 | .35 |
| 25 | .15 | .60 | .89 | .89 | .44 | .31 | 2.0 | 4.5 | 3.7 | 3.3 | 4.2 | .39 |
| 26 | .15 | .60 | .89 | .89 | .44 | .31 | 2.2 | 4.7 | 3.7 | 3.3 | 4.1 | .35 |
| 27 | .15 | .60 | .89 | .89 | .44 | .31 | 2.2 | 4.8 | 3.5 | 3.6 | 4.3 | .36 |
| 28 | .18 | .70 | .89 | .89 | .37 | .31 | 2.2 | 4.8 | 3.5 | 3.6 | 4.0 | .39 |
| 29 | .18 | .70 | .89 | .89 | --- | .31 | 2.8 | 5.1 | 3.4 | 3.5 | 3.8 | .41 |
| 30 | .22 | .70 | .89 | .89 | --- | .31 | 6.0 | 5.3 | 3.3 | 3.5 | 4.5 | .40 |
| 31 | .26 | --- | .89 | .89 | --- | .37 | --- | 5.4 | --- | 3.9 | 4.5 | --- |
| TOTAL | 5.42 | 11.00 | 27.06 | 26.30 | 19.30 | 10.40 | 37.67 | 138.2 | 146.7 | 122.1 | 131.4 | 68.30 |
| MEAN | .17 | .37 | .87 | .85 | .69 | .34 | 1.26 | 4.46 | 4.89 | 3.94 | 4.24 | 2.28 |
| MAX | .26 | .70 | .90 | 1.0 | 1.0 | .37 | 6.0 | 7.2 | 7.2 | 5.1 | 5.3 | 4.5 |
| MIN | .09 | .20 | .80 | .68 | .37 | .26 | .37 | 3.3 | 3.3 | 3.2 | 3.6 | .35 |
| AC-FT | 11 | 22 | 54 | 52 | 38 | 21 | 75 | 274 | 291 | 242 | 261 | 135 |

CAL YR 1977 TOTAL 734.19 MEAN 2.01 MAX 6.4 MIN .09 AC-FT 1460
WTR YR 1978 TOTAL 743.85 MEAN 2.04 MAX 7.2 MIN .09 AC-FT 1480

## 09386030 LITTLE COLORADO RIVER ABOVE ZION RESERVOIR, NEAR ST. JOHNS, AZ

LOCATION.--Lat 34°35'01", long 109°24'23", in SE¼SE¼ sec.30, T.14 N., R.28 E., Apache County, Hydrologic Unit 15020002, on downstream side of center pier of bridge on private road, 1.5 mi (2.4 km) upstream from Carrizo Creek, 4 mi (6 km) upstream from Zion Reservoir, and 5.8 mi (9.3 km) northwest of St. Johns.

DRAINAGE AREA.--975 $mi^2$ (2,525 $km^2$).

PERIOD OF RECORD.--October 1975 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 5,560 ft (1,690 m), from topographic map.

REMARKS.--Records fair. Diversions above station for irrigation of about 10,200 acres (41.3 $km^2$), including 1,500 acres (6.07 $km^2$) served by Lyman Canal. Regulation by many reservoirs above station (combined capacity, 46,900 acre-ft or 57.8 $hm^3$), the largest of which is Lyman Lake (see sta 09384500).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 100 $ft^3/s$ (2.83 $m^3/s$) Oct. 7, 1977, gage height, 2.47 ft (0.753 m); minimum daily, 0.04 $ft^3/s$ (0.001 $m^3/s$) Aug. 2, Sept. 7, 1978.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*) and peak discharges above base of 40 $ft^3/s$ (1.133 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|
| Oct. 7 | 1300 | *100 | 2.83 | 2.47 | 0.753 |
| Mar. 2 | 2215 | 88 | 2.49 | 2.48 | 0.756 |

Minimum daily, 0.04 $ft^3/s$ (0.001 $m^3/s$) Aug. 2, Sept. 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2.6 | 4.8 | 6.8 | 4.5 | 23 | 31 | 9.7 | 3.6 | .61 | .12 | .05 | .12 |
| 2 | 2.0 | 4.5 | 6.8 | 4.5 | 18 | 69 | 10 | 3.9 | .61 | .18 | .04 | .12 |
| 3 | 3.0 | 4.5 | 6.8 | 4.5 | 13 | 58 | 9.3 | 4.2 | .50 | .24 | .05 | .10 |
| 4 | 3.0 | 4.5 | 7.2 | 5.1 | 11 | 18 | 8.8 | 2.9 | .32 | .12 | .05 | .10 |
| 5 | 3.1 | 4.5 | 6.4 | 4.8 | 9.7 | 13 | 8.4 | 2.7 | .24 | .32 | .05 | .08 |
| 6 | 16 | 5.1 | 7.2 | 4.2 | 9.6 | 17 | 8.4 | 5.1 | .32 | .50 | .05 | .06 |
| 7 | 80 | 6.1 | 6.4 | 4.2 | 10 | 15 | 8.4 | 14 | .32 | .12 | .05 | .04 |
| 8 | 26 | 8.0 | 6.1 | 4.2 | 9.7 | 12 | 7.6 | 6.1 | .24 | .09 | .05 | .05 |
| 9 | 12 | 6.4 | 6.1 | 4.5 | 8.9 | 11 | 8.0 | 3.7 | .32 | .09 | .05 | .07 |
| 10 | 8.8 | 5.4 | 6.1 | 4.5 | 8.8 | 11 | 8.4 | 3.1 | .18 | .09 | .05 | .09 |
| 11 | 6.1 | 5.1 | 6.1 | 4.8 | 9.9 | 12 | 8.4 | 2.2 | .41 | .50 | .05 | .07 |
| 12 | 5.7 | 5.1 | 6.1 | 4.5 | 10 | 12 | 8.4 | 1.3 | .24 | .12 | .05 | .09 |
| 13 | 4.8 | 5.1 | 5.7 | 4.2 | 10 | 13 | 7.6 | 5.7 | .09 | .07 | .09 | .09 |
| 14 | 4.8 | 5.4 | 5.4 | 4.2 | 11 | 12 | 5.1 | 3.9 | .09 | .07 | .05 | .07 |
| 15 | 4.5 | 6.1 | 5.4 | 4.8 | 11 | 10 | 5.1 | 1.6 | .07 | .07 | .05 | .50 |
| 16 | 4.2 | 6.4 | 5.7 | 5.1 | 11 | 10 | 6.4 | 2.0 | .07 | .07 | .05 | .86 |
| 17 | 4.2 | 6.8 | 6.1 | 5.4 | 12 | 10 | 7.6 | 1.8 | 1.0 | .07 | .05 | 12 |
| 18 | 4.5 | 7.2 | 5.7 | 6.8 | 14 | 10 | 7.6 | 3.4 | .61 | .09 | .05 | 6.5 |
| 19 | 4.5 | 6.8 | 5.1 | 6.4 | 13 | 10 | 8.8 | 3.1 | .12 | .09 | .07 | 1.8 |
| 20 | 4.2 | 5.7 | 4.2 | 7.6 | 12 | 11 | 7.6 | 2.2 | .12 | .09 | 6.1 | .86 |
| 21 | 3.4 | 5.7 | 4.2 | 8.4 | 12 | 11 | 6.4 | 2.2 | .09 | .09 | 9.2 | 1.1 |
| 22 | 3.9 | 6.1 | 4.2 | 6.8 | 12 | 12 | 6.1 | 2.2 | .05 | .07 | 9.6 | 1.0 |
| 23 | 3.9 | 7.2 | 4.8 | 6.4 | 12 | 19 | 6.1 | 1.6 | .05 | .07 | .86 | 1.5 |
| 24 | 4.2 | 6.4 | 5.1 | 7.6 | 11 | 15 | 7.6 | 1.1 | .07 | .05 | .73 | 2.2 |
| 25 | 4.2 | 6.4 | 4.5 | 6.4 | 12 | 12 | 6.4 | .73 | .07 | .05 | 1.1 | .50 |
| 26 | 4.5 | 6.8 | 3.9 | 6.4 | 12 | 12 | 5.7 | 1.1 | .07 | .05 | .50 | .18 |
| 27 | 4.5 | 7.2 | 4.5 | 8.0 | 11 | 11 | 4.5 | 1.6 | .07 | .05 | .41 | .07 |
| 28 | 4.5 | 6.8 | 4.8 | 7.6 | 19 | 9.9 | 4.2 | 2.4 | .09 | .05 | .32 | .09 |
| 29 | 6.4 | 6.4 | 5.1 | 8.0 | --- | 10 | 4.2 | 2.7 | .07 | .18 | .32 | .09 |
| 30 | 8.0 | 6.8 | 5.4 | 8.0 | --- | 10 | 3.9 | 2.4 | .09 | .05 | .14 | .09 |
| 31 | 5.7 | --- | 4.5 | 21 | --- | 9.9 | --- | 2.2 | --- | .05 | .14 | --- |
| TOTAL | 257.2 | 179.3 | 172.4 | 193.4 | 336.6 | 496.8 | 214.7 | 96.73 | 7.20 | 3.87 | 30.42 | 30.49 |
| MEAN | 8.30 | 5.98 | 5.56 | 6.24 | 12.0 | 16.0 | 7.16 | 3.12 | .24 | .12 | .98 | 1.02 |
| MAX | 80 | 8.0 | 7.2 | 21 | 23 | 69 | 10 | 14 | 1.0 | .50 | 9.6 | 12 |
| MIN | 2.0 | 4.5 | 3.9 | 4.2 | 8.8 | 9.9 | 3.9 | .73 | .05 | .05 | .04 | .04 |
| AC-FT | 510 | 356 | 342 | 384 | 668 | 985 | 426 | 192 | 14 | 7.7 | 60 | 60 |

CAL YR 1977 TOTAL 1976.33 MEAN 5.41 MAX 80 MIN .09 AC-FT 3920
WTR YR 1978 TOTAL 2019.11 MEAN 5.53 MAX 80 MIN .04 AC-FT 4000

## 09386950 ZUNI RIVER ABOVE BLACK ROCK RESERVOIR, NM

LOCATION.--Lat 35°06'03", long 108°45'03", in NE¼ sec.17, T.10 N., R.18 W., McKinley County, Hydrologic Unit 15020004, on Zuni Indian Reservation, on left bank downstream from highway bridge on State Highway 36, 0.8 mi (1.3 km) upstream from flow line of Black Rock Reservoir, 2.3 mi (3.7 km) northeast of Black Rock, and 5.9 mi (9.5 km) northeast of Zuni Pueblo.

DRAINAGE AREA.--810 $mi^2$ (2,100 $km^2$), approximately.

PERIOD OF RECORD.--October 1969 to current year. Prior to October 1974 published as "above Zuni Reservoir."

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 6,480 ft (1,975 m), from topographic map.

REMARKS.--Records good except those for winter periods, which are poor. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--9 years, 8.06 $ft^3/s$ (0.228 $m^3/s$), 5,840 acre-ft/yr (7.20 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,200 $ft^3/s$ (147 $m^3/s$) Aug. 4, 1974, gage height, 6.61 ft (2.015 m), from rating curve extended above 670 $ft^3/s$ (19.0 $m^3/s$) on basis of slope-area measurements at gage heights 4.05, 3.94, 5.16, and 6.61 ft (1.234, 1.201, 1.573, and 2.015 m); no flow for many days.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 360 $ft^3/s$ (10.2 $m^3/s$) Mar. 2, gage height, 3.99 ft (1.216 m), base discharge 100 $ft^3/s$ (2.8 $m^3/s$); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .28 | .37 | .10 | .50 | 4.0 | 59 | 58 | .49 | .00 | .00 | .07 | .15 |
| 2 | .29 | .44 | .10 | .50 | 3.5 | 86 | 55 | .68 | .00 | .00 | .35 | .20 |
| 3 | .28 | .49 | .10 | .30 | 3.0 | 158 | 54 | 1.0 | .00 | .00 | .43 | .22 |
| 4 | .26 | .48 | .10 | .60 | 3.5 | 22 | 47 | .69 | .00 | .00 | .33 | .25 |
| 5 | .30 | .45 | .10 | 1.0 | 4.5 | 9.0 | 35 | .50 | .00 | .00 | .16 | .37 |
| 6 | .79 | 2.6 | .50 | 1.4 | 4.5 | 7.0 | 28 | 2.2 | .00 | .00 | .10 | .69 |
| 7 | 1.5 | 8.5 | .50 | 1.4 | 4.5 | 4.6 | 17 | 2.9 | .00 | .00 | .31 | 1.3 |
| 8 | .89 | 4.0 | .50 | 1.0 | 4.0 | 2.5 | 12 | 1.2 | .00 | .00 | .21 | .45 |
| 9 | .69 | 2.6 | .10 | .80 | 3.3 | 2.0 | 11 | .74 | .00 | .00 | .13 | .23 |
| 10 | .75 | 1.2 | .12 | 1.2 | 2.2 | 2.3 | 11 | .51 | .00 | .00 | .11 | .08 |
| 11 | .56 | 1.1 | .12 | 1.2 | 2.5 | 3.1 | 9.6 | .52 | .00 | .00 | .09 | .11 |
| 12 | .48 | 1.3 | .10 | 1.2 | 2.5 | 2.5 | 6.6 | .43 | .00 | .00 | .08 | .14 |
| 13 | .53 | 1.0 | .10 | 1.2 | 2.0 | 2.3 | 5.4 | .58 | .00 | .17 | .10 | .19 |
| 14 | .40 | .98 | .10 | .80 | 2.0 | 1.7 | 3.9 | .14 | .00 | .00 | .15 | .27 |
| 15 | .63 | .88 | .07 | .80 | 1.5 | 1.6 | 2.4 | .11 | .00 | .00 | .01 | .52 |
| 16 | .63 | 1.1 | .08 | 1.2 | 1.2 | 1.5 | 1.8 | .00 | .00 | .00 | .00 | 2.1 |
| 17 | .50 | .93 | .08 | 1.2 | .80 | 1.4 | 1.5 | .00 | .00 | .00 | .00 | 2.0 |
| 18 | .47 | .85 | .08 | 1.2 | .50 | 1.4 | 1.6 | .00 | .00 | .00 | .00 | .93 |
| 19 | .54 | .85 | .08 | 1.2 | .80 | 1.3 | 1.8 | .00 | .00 | 16 | .00 | .97 |
| 20 | .59 | .71 | .08 | 1.2 | 1.0 | 1.4 | 1.7 | .35 | .00 | 5.2 | .00 | .77 |
| 21 | .58 | .48 | .08 | 1.0 | 1.2 | 1.4 | 1.4 | 3.4 | .00 | 1.6 | 5.4 | .81 |
| 22 | .59 | .47 | .90 | .80 | 1.4 | 1.9 | 1.2 | .42 | .00 | .25 | 4.6 | .85 |
| 23 | .36 | .58 | .90 | .60 | 1.4 | 2.9 | 1.3 | .29 | .00 | .08 | 1.1 | .85 |
| 24 | .51 | .77 | .90 | .40 | 1.4 | 1.9 | 1.3 | .10 | .00 | .06 | .61 | .65 |
| 25 | 1.0 | .86 | .90 | .10 | 1.5 | 3.3 | 1.3 | .00 | .00 | .13 | .81 | .77 |
| 26 | .59 | .75 | 1.0 | .50 | 1.5 | 9.0 | 1.2 | .00 | .00 | .35 | .57 | .73 |
| 27 | .54 | .77 | 1.0 | 1.0 | 1.6 | 15 | .90 | .00 | .00 | .32 | .53 | .45 |
| 28 | .57 | .82 | 1.0 | 1.4 | 7.6 | 15 | .89 | .00 | .00 | .14 | .40 | .32 |
| 29 | .94 | .72 | 1.0 | 2.0 | --- | 12 | .85 | .00 | .00 | .03 | .20 | .32 |
| 30 | 2.0 | .20 | 1.0 | 2.5 | --- | 14 | .56 | .00 | .00 | .02 | .13 | .19 |
| 31 | .99 | --- | 1.0 | 3.5 | --- | 39 | --- | .00 | --- | .02 | .13 | --- |
| TOTAL | 20.03 | 37.25 | 12.79 | 33.70 | 69.40 | 466.0 | 375.20 | 17.25 | .00 | 24.37 | 17.11 | 18.08 |
| MEAN | .65 | 1.24 | .41 | 1.09 | 2.48 | 15.0 | 12.5 | .56 | .000 | .79 | .55 | .60 |
| MAX | 2.0 | 8.5 | 1.0 | 3.5 | 7.6 | 158 | 58 | 3.4 | .00 | 16 | 5.4 | 2.1 |
| MIN | .26 | .20 | .07 | .10 | .50 | 1.3 | .56 | .00 | .00 | .00 | .00 | .08 |
| AC-FT | 40 | 74 | 25 | 67 | 138 | 924 | 744 | 34 | .00 | 48 | 34 | 36 |

CAL YR 1977 TOTAL 1780.49 MEAN 4.88 MAX 369 MIN .00 AC-FT 3530
WTR YR 1978 TOTAL 1091.18 MEAN 2.99 MAX 158 MIN .00 AC-FT 2160

## 09390500 SHOW LOW CREEK NEAR LAKESIDE, AZ

LOCATION.--Lat 34°10'46", long 109°59'14", in SW¼NW¼ sec 14, T.9 N., R.22 E., Navajo County, Hydrologic Unit 15020005, on left bank 1 mi (2 km) upstream from pumping plant on Show Low Lake, 1.9 mi (3.1 km) northwest of Lakeside, 2.2 mi (3.5 km) upstream from Jaques Dam, and 6 mi (10 km) southeast of Show Low.

DRAINAGE AREA.--68.6 $mi^2$ (177.7 $km^2$).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1953 to current year.

REVISED RECORDS.--WSP 1513: 1954-56. WSP 1926: Drainage area. WRD Ariz. 1971: 1970(M).

GAGE.--Water-stage recorder and concrete-dam control with V-notch sharp-crested weir. Altitude of gage is 6,610 ft (2,015 m), from topographic map.

REMARKS.--Records good except those for Nov. 8 to Dec. 3, Jan. 28 to Feb. 1, and July 18 to Aug. 2, which are poor. Record shows inflow to Show Low Lake. Flow partly regulated by several small reservoirs, largest of which are Rainbow Lake and Scott Reservoir, combined capacity, 2,400 acre-ft (2.96 $hm^3$). Diversions for irrigation of about 250 acres (1.01 $km^2$) above station.

AVERAGE DISCHARGE.--25 years, 11.3 $ft^3/s$ (0.320 $m^3/s$), 8,190 acre-ft/yr (10.1 $hm^3/yr$); median of yearly mean discharges, 7.9 $ft^3/s$ (0.22 $m^3/s$), 5,700 acre-ft/yr (7.0 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,450 $ft^3/s$ (154 $m^3/s$) Dec. 26, 1971, gage height, 9.53 ft (2.905 m), from rating curve extended above 2,500 $ft^3/s$ (71 $m^3/s$) on basis of slope-area measurement of peak flow; no flow Oct. 5, 6, Dec. 10-19, 1964, Jan. 4-15, 1970.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*) and peak discharges above base of 100 $ft^3/s$ (2.8 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) | Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Feb. 1 | Unknown | 107 | 3.03 | 3.06 | 0.933 | Mar. 13 | 2100 | 112 | 3.17 | 3.08 | 0.939 |
| Mar. 1 | 1230 | *2,750 | 77.9 | 6.56 | 1.999 | Mar. 15 | 0215 | 117 | 3.31 | 3.10 | 0.945 |
| Mar. 3 | 0545 | 1,170 | 33.1 | 4.98 | 1.518 | Mar. 23 | 0700 | 406 | 11.5 | 3.84 | 1.170 |

Minimum daily, 0.29 $ft^3/s$ (0.008 $m^3/s$) Oct. 21, 22, 24, 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .65 | .51 | .60 | .87 | 90 | 1810 | 27 | 3.0 | 3.7 | 9.1 | 6.0 | 4.7 |
| 2 | .59 | .60 | .60 | .82 | 36 | 585 | 68 | 3.3 | 4.0 | 9.1 | 6.5 | 4.9 |
| 3 | .42 | .63 | .60 | .80 | 17 | 906 | 42 | 3.7 | 4.1 | 9.0 | 6.5 | 4.9 |
| 4 | .37 | .50 | .60 | .78 | 11 | 293 | 28 | 3.6 | 4.3 | 8.4 | 5.7 | 5.1 |
| 5 | .48 | .31 | .72 | .75 | 9.1 | 232 | 19 | 3.5 | 4.4 | 8.2 | 5.4 | 5.2 |
| 6 | 5.4 | 1.7 | .77 | .74 | 8.2 | 183 | 15 | 4.3 | 3.8 | 8.2 | 5.3 | 5.3 |
| 7 | 4.9 | 2.0 | .77 | 1.1 | 9.0 | 123 | 13 | 5.3 | 2.8 | 8.1 | 5.6 | 4.9 |
| 8 | 1.6 | 1.8 | .77 | 1.8 | 9.8 | 79 | 16 | 5.3 | 2.3 | 8.1 | 5.8 | 5.6 |
| 9 | 1.5 | 1.5 | .77 | 1.8 | 11 | 65 | 19 | 5.2 | 2.0 | 7.4 | 6.1 | 5.8 |
| 10 | 2.1 | 1.0 | .77 | 3.3 | 9.1 | 63 | 19 | 4.4 | 2.7 | 6.7 | 5.2 | 5.8 |
| 11 | 2.0 | 1.0 | .69 | 2.6 | 12 | 58 | 19 | 4.1 | 2.6 | 5.9 | 2.9 | 5.9 |
| 12 | 1.9 | .90 | .77 | 2.3 | 11 | 84 | 19 | 3.9 | 2.5 | 5.7 | 2.2 | 5.8 |
| 13 | .98 | .90 | .67 | 2.0 | 11 | 79 | 18 | 3.7 | 2.5 | 5.6 | 1.9 | 6.0 |
| 14 | .40 | .90 | .58 | 1.9 | 10 | 92 | 15 | 3.0 | 3.0 | 5.3 | 2.5 | 6.3 |
| 15 | .35 | .90 | .87 | 2.0 | 10 | 85 | 11 | 2.5 | 3.2 | 5.3 | 2.0 | 7.3 |
| 16 | .32 | .90 | .64 | 2.1 | 10 | 55 | 9.2 | 2.2 | 3.7 | 5.1 | 2.2 | 8.1 |
| 17 | .32 | .80 | .41 | 2.4 | 9.4 | 46 | 7.9 | 1.8 | 1.7 | 5.2 | 2.5 | 7.9 |
| 18 | .33 | .80 | .37 | 2.6 | 9.4 | 47 | 6.4 | 1.4 | 2.1 | 5.5 | 2.0 | 7.4 |
| 19 | .32 | .80 | .36 | 2.4 | 9.4 | 52 | 7.1 | 1.3 | 4.0 | 5.5 | 1.4 | 7.4 |
| 20 | .30 | .80 | .31 | 2.4 | 9.3 | 61 | 11 | 1.6 | 6.5 | 5.5 | 1.4 | 7.1 |
| 21 | .29 | .80 | .30 | 2.4 | 9.5 | 63 | 12 | 2.1 | 6.6 | 5.5 | 1.5 | 7.2 |
| 22 | .29 | .80 | .31 | 2.2 | 14 | 109 | 12 | 2.1 | 6.1 | 5.5 | 1.6 | 8.0 |
| 23 | .31 | .80 | .39 | 2.2 | 29 | 305 | 11 | 1.7 | 6.0 | 5.5 | 2.1 | 7.1 |
| 24 | .29 | .80 | .79 | 2.1 | 38 | 139 | 11 | 1.5 | 6.0 | 5.5 | 2.2 | 6.3 |
| 25 | .29 | .70 | .81 | 2.0 | 38 | 70 | 10 | 2.1 | 5.8 | 5.5 | 2.2 | 6.0 |
| 26 | .48 | .70 | .80 | 2.2 | 37 | 50 | 9.4 | 2.5 | 6.4 | 5.5 | 1.6 | 5.8 |
| 27 | .61 | .70 | .78 | 2.6 | 30 | 41 | 7.2 | 2.9 | 8.8 | 5.5 | 4.2 | 3.9 |
| 28 | .62 | .70 | .50 | 3.5 | 445 | 39 | 6.0 | 3.2 | 9.6 | 5.5 | 4.6 | 3.0 |
| 29 | .66 | .70 | .51 | 5.0 | --- | 29 | 4.0 | 3.4 | 9.4 | 5.5 | 4.7 | 2.7 |
| 30 | .50 | .70 | .85 | 10 | --- | 22 | 3.1 | 3.5 | 9.1 | 5.5 | 4.7 | 2.3 |
| 31 | .65 | --- | .95 | 65 | --- | 20 | --- | 3.5 | --- | 5.5 | 4.9 | --- |
| TOTAL | 30.22 | 26.65 | 19.63 | 134.66 | 952.2 | 5865 | 475.3 | 95.6 | 139.7 | 197.4 | 113.4 | 173.7 |
| MEAN | .97 | .89 | .63 | 4.34 | 34.0 | 189 | 15.8 | 3.08 | 4.66 | 6.37 | 3.66 | 5.79 |
| MAX | 5.4 | 2.0 | .95 | 65 | 445 | 1810 | 68 | 5.3 | 9.6 | 9.1 | 6.5 | 8.1 |
| MIN | .29 | .31 | .30 | .74 | 8.2 | 20 | 3.1 | 1.3 | 1.7 | 5.1 | 1.4 | 2.3 |
| AC-FT | 60 | 53 | 39 | 267 | 1890 | 11630 | 943 | 190 | 277 | 392 | 225 | 345 |

CAL YR 1977 TOTAL 1352.57 MEAN 3.71 MAX 28 MIN .20 AC-FT 2680
WTR YR 1978 TOTAL 8223.46 MEAN 22.5 MAX 1810 MIN .29 AC-FT 16310

09390500 SHOW LOW CREEK NEAR LAKESIDE, AZ--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--January 1976 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | TUR-BID-ITY (JTU) | TUR-BID-ITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 13... | 0900 | .58 | 200 | 8.2 | 10.0 | 25 | -- | 8.5 |
| DEC | | | | | | | | |
| 07... | 1030 | .97 | 210 | 9.3 | 1.5 | 6 | -- | 11.0 |
| JAN | | | | | | | | |
| 12... | 1100 | 2.6 | 250 | 7.3 | 2.0 | 4 | -- | 10.6 |
| FEB | | | | | | | | |
| 15... | 0900 | 9.9 | 245 | 9.4 | 4.5 | 15 | -- | 11.3 |
| MAR | | | | | | | | |
| 14... | 1630 | 83 | 70 | 7.3 | 10.0 | 40 | -- | 8.6 |
| APR | | | | | | | | |
| 09... | 0900 | 6.3 | 130 | 7.9 | 10.0 | 20 | -- | 8.4 |
| MAY | | | | | | | | |
| 10... | 0700 | 4.8 | 180 | 7.6 | 7.0 | -- | 4.0 | 7.8 |
| JUN | | | | | | | | |
| 06... | 1530 | 3.9 | 195 | 8.9 | 20.5 | 4 | -- | 7.9 |
| JUL | | | | | | | | |
| 11... | 1600 | 5.8 | 130 | 8.2 | 23.0 | 5 | -- | 6.9 |
| AUG | | | | | | | | |
| 16... | 1500 | 2.6 | 145 | 8.3 | 23.0 | 20 | -- | 6.9 |
| SEP | | | | | | | | |
| 13... | 0900 | 6.1 | 170 | 7.5 | 16.0 | 7 | -- | 7.5 |

| DATE | COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | BICAR-BONATE (MG/L AS HCO3) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 13... | 43 | 95 | 0 | 19 | 11 | 8.2 | .4 | 2.2 | 120 |
| DEC | | | | | | | | | |
| 07... | 1 | 100 | 0 | 21 | 12 | 8.2 | .4 | 1.8 | 130 |
| JAN | | | | | | | | | |
| 12... | -- | 110 | 4 | 23 | 13 | 8.7 | .4 | 1.7 | 130 |
| FEB | | | | | | | | | |
| 15... | 26 | 100 | 0 | 22 | 12 | 7.6 | .3 | 1.9 | 130 |
| MAR | | | | | | | | | |
| 14... | 7 | 44 | 13 | 11 | 4.0 | 2.9 | .2 | 1.2 | 38 |
| APR | | | | | | | | | |
| 09... | 8 | 64 | 4 | 14 | 7.1 | 4.5 | .2 | 1.4 | 74 |
| MAY | | | | | | | | | |
| 10... | 21 | 91 | 1 | 31 | 3.4 | 6.9 | .3 | 2.4 | 110 |
| JUN | | | | | | | | | |
| 06... | 6 | 91 | 0 | 20 | 9.9 | 7.3 | .3 | 2.3 | 91 |
| JUL | | | | | | | | | |
| 11... | 15 | 62 | 8 | 13 | 7.2 | 4.4 | .2 | 1.4 | 66 |
| AUG | | | | | | | | | |
| 16... | 7 | 63 | 0 | 13 | 7.4 | 5.1 | .3 | 1.5 | 79 |
| SEP | | | | | | | | | |
| 13... | 40 | 80 | 0 | 16 | 9.7 | 6.8 | .3 | 1.7 | 100 |

09390500 SHOW LOW CREEK NEAR LAKESIDE, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | CARBONATE (MG/L AS CO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | SOLIDS, DISSOLVED (TONS PER AC-FT) |
|---|---|---|---|---|---|---|---|---|
| OCT 13... | 0 | 5.2 | 4.8 | .1 | 13 | 118 | 123 | .16 |
| DEC 07... | 0 | 4.5 | 4.5 | .1 | 13 | 128 | 129 | .17 |
| JAN 12... | 0 | 6.2 | 5.8 | .1 | 9.4 | 132 | 133 | .18 |
| FEB 15... | 0 | 6.8 | 5.0 | .1 | 12 | 116 | 132 | .16 |
| MAR 14... | 0 | 6.6 | 2.9 | .0 | 12 | 71 | 60 | .10 |
| APR 09... | 0 | 6.5 | 3.1 | .1 | 15 | 88 | 89 | .12 |
| MAY 10... | 0 | 6.0 | 5.6 | .0 | 7.7 | 119 | 118 | .16 |
| JUN 06... | 12 | 4.6 | 5.8 | -- | 7.0 | 118 | 114 | .16 |
| JUL 11... | 0 | 6.5 | 3.0 | .1 | 12 | 81 | 81 | .11 |
| AUG 16... | 0 | 5.2 | 3.5 | .1 | 13 | 92 | 89 | .13 |
| SEP 13... | 0 | 8.9 | 4.9 | .1 | 13 | 105 | 111 | .14 |

| DATE | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | NITROGEN, NH4 + ORG. TOT IN BOT MAT (MG/KG AS N) | NITROGEN, TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | PHOSPHORUS, DISSOLVED (MG/L AS P) | PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT 13... | .05 | -- | -- | -- | .53 | -- | .58 | .07 | -- | -- |
| DEC 07... | .02 | .01 | -- | -- | .74 | -- | .76 | .01 | -- | .01 |
| JAN 12... | .11 | .10 | -- | -- | .37 | -- | .48 | .06 | -- | .03 |
| FEB 15... | .01 | .01 | -- | -- | .33 | -- | .34 | .06 | -- | .01 |
| MAR 14... | .22 | .04 | -- | -- | .57 | -- | .79 | .14 | -- | .01 |
| APR 09... | .05 | .10 | -- | -- | 1.8 | -- | 1.9 | .05 | -- | .01 |
| MAY 10... | .00 | .04 | -- | -- | .33 | -- | .33 | .06 | -- | .01 |
| JUN 06... | -- | -- | .03 | .05 | 1.9 | 1200 | 1.9 | .07 | .01 | -- |
| JUL 11... | .05 | .07 | -- | -- | .74 | -- | .79 | .07 | -- | .02 |
| AUG 16... | .05 | .07 | -- | -- | .99 | -- | 1.0 | .09 | -- | .04 |
| SEP 13... | .02 | .02 | -- | -- | .71 | -- | .73 | .11 | -- | .01 |

09390500 SHOW LOW CREEK NEAR LAKESIDE, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | ARSENIC TOTAL (UG/L AS AS) | ARSENIC TOTAL IN BOTTOM MATERIAL (UG/G AS AS) | BARIUM, TOTAL RECOVERABLE (UG/L AS BA) | BARIUM, RECOV. FM BOTTOM MATERIAL (UG/G AS BA) | BORON, TOTAL RECOVERABLE (UG/L AS B) | BORON, DISSOLVED (UG/L AS B) | CADMIUM TOTAL RECOVERABLE (UG/L AS CD) | CADMIUM RECOV. FM BOTTOM MATERIAL (UG/G AS CD) | CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 13... | 2 | -- | 0 | -- | 50 | 40 | <10 | -- | 10 |
| DEC | | | | | | | | | |
| 07... | 1 | -- | 100 | -- | 70 | 20 | 0 | -- | 0 |
| JAN | | | | | | | | | |
| 12... | 2 | -- | 0 | -- | 70 | 30 | 0 | -- | 10 |
| FEB | | | | | | | | | |
| 15... | 1 | -- | 0 | -- | 90 | 40 | 0 | -- | 0 |
| MAR | | | | | | | | | |
| 14... | 1 | -- | 0 | -- | 100 | 40 | 3 | -- | 10 |
| APR | | | | | | | | | |
| 09... | 3 | -- | 200 | -- | 80 | 20 | 1 | -- | 10 |
| MAY | | | | | | | | | |
| 10... | 1 | -- | 200 | -- | 90 | 40 | 0 | -- | 0 |
| JUN | | | | | | | | | |
| 06... | -- | 11 | 2 | 160 | 90 | 30 | 2 | 0 | -- |
| JUL | | | | | | | | | |
| 11... | 0 | -- | 200 | -- | 70 | 40 | 1 | -- | 0 |
| AUG | | | | | | | | | |
| 16... | 3 | -- | 200 | -- | 80 | 30 | 1 | -- | 10 |
| SEP | | | | | | | | | |
| 13... | 3 | -- | 0 | -- | 90 | 50 | 4 | -- | 0 |

| DATE | CHROMIUM, RECOV. FM BOTTOM MATERIAL (UG/G) | COBALT, TOTAL RECOVERABLE (UG/L AS CO) | COPPER, TOTAL RECOVERABLE (UG/L AS CU) | COPPER, RECOV. FM BOTTOM MATERIAL (UG/G AS CU) | IRON, TOTAL RECOVERABLE (UG/L AS FE) | IRON, DISSOLVED (UG/L AS FE) | LEAD, TOTAL RECOVERABLE (UG/L AS PB) | LEAD, RECOV. FM BOTTOM MATERIAL (UG/G AS PB) | MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 13... | -- | -- | 10 | -- | 1000 | 30 | <100 | -- | 100 |
| DEC | | | | | | | | | |
| 07... | -- | -- | 2 | -- | 490 | 70 | 3 | -- | 30 |
| JAN | | | | | | | | | |
| 12... | -- | -- | 5 | -- | 350 | 40 | 2 | -- | 10 |
| FEB | | | | | | | | | |
| 15... | -- | -- | 6 | -- | 1100 | 100 | 10 | -- | 50 |
| MAR | | | | | | | | | |
| 14... | -- | -- | 10 | -- | 2200 | 30 | 6 | -- | 40 |
| APR | | | | | | | | | |
| 09... | -- | -- | 4 | -- | 990 | 130 | 9 | -- | 30 |
| MAY | | | | | | | | | |
| 10... | -- | -- | 6 | -- | 500 | 60 | 8 | -- | 40 |
| JUN | | | | | | | | | |
| 06... | 15 | 0 | 10 | 1300 | 470 | 80 | 7 | 38 | 60 |
| JUL | | | | | | | | | |
| 11... | -- | -- | 9 | -- | 850 | 20 | 6 | -- | 80 |
| AUG | | | | | | | | | |
| 16... | -- | -- | 8 | -- | 1800 | 280 | 10 | -- | 170 |
| SEP | | | | | | | | | |
| 13... | -- | -- | 5 | -- | 1200 | 20 | 6 | -- | 120 |

< Actual value is known to be less than value shown.

09390500 SHOW LOW CREEK NEAR LAKESIDE, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | MANGANESE, DISSOLVED (UG/L AS MN) | MANGANESE, RECOV. FM BOTTOM MATERIAL (UG/G) | MERCURY TOTAL RECOVERABLE (UG/L AS HG) | SELENIUM, TOTAL (UG/L AS SE) | SELENIUM, TOTAL IN BOTTOM MATERIAL (UG/G) | SILVER, TOTAL RECOVERABLE (UG/L AS AG) | SILVER, RECOV. FM BOTTOM MATERIAL (UG/G AS AG) | ZINC, TOTAL RECOVERABLE (UG/L AS ZN) | ZINC, RECOV. FM BOTTOM MATERIAL (UG/G AS ZN) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 13... | 8 | -- | .0 | 0 | -- | <10 | -- | 30 | -- |
| DEC | | | | | | | | | |
| 07... | 0 | -- | .0 | 0 | -- | 0 | -- | 40 | -- |
| JAN | | | | | | | | | |
| 12... | 10 | -- | .1 | 0 | -- | 0 | -- | 40 | -- |
| FEB | | | | | | | | | |
| 15... | 10 | -- | .2 | 0 | -- | 4 | -- | 20 | -- |
| MAR | | | | | | | | | |
| 14... | 10 | -- | .0 | 0 | -- | 1 | -- | 20 | -- |
| APR | | | | | | | | | |
| 09... | 0 | -- | .0 | 0 | -- | 0 | -- | 20 | -- |
| MAY | | | | | | | | | |
| 10... | 0 | -- | .0 | 0 | -- | 0 | -- | 20 | -- |
| JUN | | | | | | | | | |
| 06... | 20 | 0 | -- | 0 | 0 | 0 | 1 | 20 | 22 |
| JUL | | | | | | | | | |
| 11... | 10 | | .0 | 0 | -- | 0 | -- | 20 | -- |
| AUG | | | | | | | | | |
| 16... | 40 | -- | .4 | . | -- | 0 | -- | 30 | -- |
| SEP | | | | | | | | | |
| 13... | 0 | -- | .0 | 0 | -- | 2 | -- | 10 | -- |

| DATE | CARBON, ORGANIC TOTAL (MG/L AS C) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS (UG/L) | PHYTOPLANKTON, TOTAL (CELLS PER ML) | PERIPHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M | PERIPHYTON BIOMASS ASH WEIGHT G/SQ M | CHLOR-A PERIPHYTON CHROMOGRAPHIC FLUOROM (MG/M2) | CHLOR-B PERIPHYTON CHROMOGRAPHIC FLUORUM (MG/M2) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 13... | 5.3 | .00 | -- | -- | -- | -- | -- | -- |
| DEC | | | | | | | | |
| 07... | 3.6 | .00 | 5 | -- | -- | -- | -- | -- |
| JAN | | | | | | | | |
| 12... | 3.7 | .00 | 0 | -- | -- | -- | -- | -- |
| FEB | | | | | | | | |
| 15... | 5.7 | .00 | 2 | -- | -- | -- | -- | -- |
| MAR | | | | | | | | |
| 14... | 9.0 | .00 | 6 | -- | -- | -- | -- | -- |
| APR | | | | | | | | |
| 09... | 5.3 | .00 | 0 | -- | -- | -- | -- | -- |
| MAY | | | | | | | | |
| 10... | 8.6 | .00 | 0 | -- | -- | -- | -- | -- |
| JUN | | | | | | | | |
| 06... | 7.6 | .00 | 2 | 370 | 2.70 | 2.60 | .840 | .640 |
| JUL | | | | | | | | |
| 11... | 8.5 | .00 | 6 | -- | -- | -- | -- | -- |
| AUG | | | | | | | | |
| 16... | 7.5 | .00 | 2 | -- | -- | -- | -- | -- |
| SEP | | | | | | | | |
| 13... | 8.7 | .00 | 2 | -- | -- | -- | -- | -- |

< Actual value is known to be less than value shown.

09390500 SHOW LOW CREEK NEAR LAKESIDE, AZ--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

PHYTOPLANKTON

| | |
|---|---|
| DATE | JUN 6,78 |
| TIME | 1530 |
| TOTAL CELLS/ML | 370 |
| DIVERSITY: DIVISION | 1.0 |
| .CLASS | 1.0 |
| ..ORDER | 1.2 |
| ...FAMILY | 2.7 |
| ....GENUS | 2.9 |

| ORGANISM | CELLS /ML | PER-CENT |
|---|---|---|
| CHLOROPHYTA (GREEN ALGAE) | | |
| .CHLOROPHYCEAE | | |
| ..CHLOROCOCCALES | | |
| ...OOCYSTACEAE | | |
| ....ANKISTRODESMUS | 29 | 8 |
| ...SCENEDESMACEAE | | |
| ....SCENEDESMUS | 120# | 32 |
| CHRYSOPHYTA | | |
| .BACILLARIOPHYCEAE | | |
| ..CENTRALES | | |
| ...COSCINODISCACEAE | | |
| ....CYCLOTELLA | 15 | 4 |
| ..PENNALES | | |
| ...ACHNANTHACEAE | | |
| ....COCCONEIS | 44 | 12 |
| ...CYMBELLACEAE | | |
| ....CYMBELLA | 59# | 16 |
| ...FRAGILARIACEAE | | |
| ....SYNEDRA | 29 | 8 |
| ...NAVICULACEAE | | |
| ....NAVICULA | 29 | 8 |
| ....PINNULARIA | 29 | 8 |
| ...NITZSCHIACEAE | | |
| ....NITZSCHIA | 15 | 4 |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

## 09392000 SHOW LOW CREEK BELOW JAQUES DAM, NEAR SHOW LOW, AZ

LOCATION.--Lat 34°11'47", long 110°00'13", in NW¼ sec.10, T.9 N., R.22 E., Navajo County, Hydrologic Unit 15020005, on right bank just downstream from Jaques Dam, 3.5 mi (5.6 km) northwest of Lakeside, and 4.5 mi (7.2 km) southeast of Show Low.

DRAINAGE AREA.--73.0 $mi^2$ (189 $km^2$).

PERIOD OF RECORD.--November 1941 to January 1945, June 1953 to September 1955 (monthly discharge only), October 1955 to current year. Monthly discharge only November 1941 to January 1945, published in WSP 1313. Published as "at Jaques damsite, near Lakeside" 1941-45.

REVISED RECORDS.--WSP 1926: Drainage area.

GAGE.--Water-stage recorder and sharp-crested weir, with periodic supplementary lake elevation readings for flow over concrete spillway. Altitude of gage is 6,530 ft (1,990 m), from topographic map. November 1941 to January 1945 nonrecording gage at site 100 ft (30 m) upstream at different datum.

REMARKS.--Records good. Record since 1953 shows release from Show Low Lake. Flow regulated by several reservoirs, largest of which are Show Low Lake, completed in 1953; Rainbow Lake, completed prior to 1941; and Scott Reservoir, completed in 1946 (combined capacity, 8,800 acre-ft or 10.9 $hm^3$). Diversions for irrigation of about 250 acres (1.0 $km^2$) above Show Low Lake and diversion by pumping of floodwater stored in Show Low Lake to Forestdale Creek in Salt River basin (see record for Forestdale Creek diversion from Show Low Creek, near Show Low, elsewhere in this report).

AVERAGE DISCHARGE--25 years (water years 1954-78), 6.11 $ft^3/s$ (0.173 $m^3/s$), 4,430 acre-ft/yr (5.46 $hm^3/yr$); median of yearly mean discharges, 3.2 $ft^3/s$ (0.09 $m^3/s$), 2,300 acre-ft/yr (2.8 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--1941-45: Maximum daily discharge, 304 $ft^3/s$ (8.61 $m^3/s$) Mar. 6, 1943; no flow Aug. 8, 9, 1943. 1953-78: Maximum discharge, about 2,500 $ft^3/s$ (71 $m^3/s$), spillway flow entering 0.2 mi (0.3 km) downstream from station, Dec. 26, 1971 (lake elevation unknown); no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 800 $ft^3/s$ (22.7 $m^3/s$) Mar. 3, lake elevation, about 8,160 ft (2,487 m); no flow for most of year.

09391000. SHOW LOW LAKE.--A lake on Show Low Creek, formed by Jaques Dam, in NW¼ sec.10, T.9 N., R.22 E., Navajo County, 4.5 mi (7.2 km) southeast of Show Low; dam completed and storage began in spring of 1953. Total capacity to spillway, 6,176 acre-ft (7.62 $km^3$), consisting of 1,070 acre-ft (1.32 $hm^3$) dead storage below elevation 6,535.0 ft (1,991.87 m), sill of outlet structure, and 5,106 acre-ft (6.30 $hm^3$) usable storage between elevation 6,535.0 and 6,570.0 ft (1,991.87 and 2,002.54 m), sill of overflow spillway. Capacity table prepared by Leeds, Hill, and Jewett, consulting engineers, from surveys by the firm. Water cannot be pumped when lake elevation is below 6,538.5 ft (1,992.93 m), sill of intake to pumping plant, but can be released to river channel down to elevation 6,535.0 ft (1,991.87 m). Partial listing of periodic observations made by Navapache Electric Co. and Geological Survey were as follows:

| Date | Elevation (feet) | Usable contents (acre-feet) | Date | Elevation (feet) | Usable contents (acre-feet) |
|---|---|---|---|---|---|
| Oct. 3, 1977 | 6,538.5 | 1,420 | Mar. 7, 1978 | 6,570.3 | 6,240 |
| Nov. 1 | 6,538.6 | 1,430 | Apr. 3 | 6,570.0 | 6,180 |
| Nov. 3 | 6,538.8 | 1,450 | May 1 | 6,566.7 | 5,550 |
| Dec. 3 | 6,539.3 | 1,500 | June 1 | 6,557.4 | 3,930 |
| Jan. 5, 1978 | 6,539.4 | 1,520 | July 3 | 6,546.0 | 2,290 |
| Feb. 1 | 6,542.2 | 1,820 | Aug. 1 | 6,539.2 | 1,490 |
| Mar. 2 | 6,570.9 | 6,350 | Sept. 1 | 6,537.6 | 1,320 |

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .00 | .00 | .00 | .00 | .00 | 500 | .00 | .00 | 4.0 | 6.4 | 5.5 | 5.6 |
| 2 | .00 | .00 | .00 | .00 | .00 | 600 | .00 | .00 | 4.0 | 6.4 | 5.5 | 5.6 |
| 3 | .00 | .00 | .00 | .00 | .00 | 800 | .00 | .00 | 4.0 | 6.4 | 5.6 | 5.6 |
| 4 | .00 | .00 | .00 | .00 | .00 | 300 | .00 | .00 | 4.0 | 6.4 | 5.6 | 5.6 |
| 5 | .00 | .00 | .00 | .00 | .00 | 200 | .00 | .00 | 4.0 | 6.4 | 5.6 | 5.6 |
| 6 | .00 | .00 | .00 | .00 | .00 | 150 | .00 | .00 | 4.0 | 6.4 | 5.6 | 5.6 |
| 7 | .00 | .00 | .00 | .00 | .00 | 100 | .00 | .00 | 4.0 | 6.4 | 5.6 | 5.5 |
| 8 | .00 | .00 | .00 | .00 | .00 | 60 | .00 | .00 | 3.9 | 6.2 | 5.6 | 5.6 |
| 9 | .00 | .00 | .00 | .00 | .00 | 60 | .00 | .00 | 4.5 | 6.2 | 4.7 | 5.6 |
| 10 | .00 | .00 | .00 | .00 | .00 | 60 | .00 | .00 | 5.8 | 6.2 | 4.2 | 5.6 |
| 11 | .00 | .00 | .00 | .00 | .00 | 60 | .00 | .00 | 5.8 | 6.2 | 4.2 | 5.6 |
| 12 | .00 | .00 | .00 | .00 | .00 | 60 | .00 | .00 | 5.8 | 6.2 | 4.2 | 5.6 |
| 13 | .00 | .00 | .00 | .00 | .00 | 60 | .00 | .00 | 5.8 | 6.2 | 4.2 | 4.9 |
| 14 | .00 | .00 | .00 | .00 | .00 | 80 | .00 | .00 | 5.7 | 6.2 | 4.2 | 4.4 |
| 15 | .00 | .00 | .00 | .00 | .00 | 70 | .00 | .00 | 5.6 | 6.2 | 4.2 | 4.4 |
| 16 | .00 | .00 | .00 | .00 | .00 | 50 | .00 | .00 | 5.6 | 6.2 | 4.3 | 4.4 |
| 17 | .00 | .00 | .00 | .00 | .00 | 30 | .00 | .00 | 5.6 | 6.0 | 4.9 | 4.4 |
| 18 | .00 | .00 | .00 | .00 | .00 | 30 | .00 | .00 | 5.9 | 6.0 | 4.9 | 4.4 |
| 19 | .00 | .00 | .00 | .00 | .00 | 40 | .00 | 1.3 | 6.9 | 6.0 | 4.9 | 4.4 |
| 20 | .00 | .00 | .00 | .00 | .00 | 50 | .00 | 3.8 | 7.1 | 6.0 | 4.9 | 5.1 |
| 21 | .00 | .00 | .00 | .00 | .00 | 50 | .00 | 3.9 | 6.9 | 5.8 | 4.9 | 5.6 |
| 22 | .00 | .00 | .00 | .00 | .00 | 90 | .00 | 4.0 | 6.9 | 5.8 | 4.9 | 5.6 |
| 23 | .00 | .00 | .00 | .00 | .00 | 250 | .00 | 4.0 | 6.8 | 5.8 | 4.8 | 5.2 |
| 24 | .00 | .00 | .00 | .00 | .00 | 100 | .00 | 4.0 | 6.6 | 5.8 | 4.8 | 4.2 |
| 25 | .00 | .00 | .00 | .00 | .00 | 50 | .00 | 4.0 | 6.6 | 5.8 | 4.8 | 4.2 |
| 26 | .00 | .00 | .00 | .00 | .00 | 30 | .00 | 4.0 | 6.6 | 5.8 | 4.7 | 4.2 |
| 27 | .00 | .00 | .00 | .00 | .00 | 20 | .00 | 4.0 | 6.6 | 5.8 | 4.7 | 4.2 |
| 28 | .00 | .00 | .00 | .00 | .00 | 10 | .00 | 4.0 | 6.6 | 5.8 | 5.2 | 4.2 |
| 29 | .00 | .00 | .00 | .00 | --- | 10 | .00 | 4.0 | 6.5 | 5.8 | 5.6 | 4.2 |
| 30 | .00 | .00 | .00 | .00 | --- | 10 | .00 | 4.0 | 6.4 | 5.8 | 5.6 | 4.2 |
| 31 | .00 | --- | .00 | .00 | --- | .00 | --- | 4.0 | --- | 5.6 | 5.6 | --- |
| TOTAL | .00 | .00 | .00 | .00 | .00 | 3980.00 | .00 | 49.00 | 168.5 | 188.2 | 154.0 | 149.3 |
| MEAN | .000 | .000 | .000 | .000 | .000 | 128 | .000 | 1.58 | 5.62 | 6.07 | 4.97 | 4.98 |
| MAX | .00 | .00 | .00 | .00 | .00 | 800 | .00 | 4.0 | 7.1 | 6.4 | 5.6 | 5.6 |
| MIN | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 3.9 | 5.6 | 4.2 | 4.2 |
| AC-FT | .00 | .00 | .00 | .00 | .00 | 7890 | .00 | 97 | 334 | 373 | 305 | 296 |

CAL YR 1977 TOTAL 858.08 MEAN 2.35 MAX 7.3 MIN .00 AC-FT 1700
WTR YR 1978 TOTAL 4689.00 MEAN 12.8 MAX 800 MIN .00 AC-FT 9300

## 09393500 SILVER CREEK NEAR SNOWFLAKE, AZ

LOCATION.--Lat 34°40'00", long 110°02'30", in SW¼NW¼ sec.29, T.15 N., R.22 E., Navajo County, Hydrologic Unit 15020005, on left bank 6 mi (10 km) upstream from mouth and 11 mi (18 km) north of Snowflake.

DRAINAGE AREA.--886 $mi^2$ (2,295 $km^2$).

PERIOD OF RECORD.--October 1950 to current year.

GAGE.--Water-stage recorder. Datum of gage is 5,204.1 ft (1,586.21 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair. Diversions for irrigation above station of about 6,600 acres (26.7 $km^2$). Flow regulated by several reservoirs—combined capacity, about 13,700 acre-ft (16.9 $hm^3$), excluding Lone Pine Reservoir, but including 6,176 acre-ft (7.62 $hm^3$) in Show Low Lake.

AVERAGE DISCHARGE.--28 years, 16.6 $ft^3/s$ (0.470 $m^3/s$), 12,030 acre-ft/yr (14.8 $hm^3/yr$); median of yearly mean discharges, 13 $ft^3/s$ (0.37 $m^3/s$), 9,400 acre-ft/yr (12 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,100 $ft^3/s$ (286 $m^3/s$) Jan. 19, 1952, gage height, 18.0 ft (5.49 m), from rating curve extended above 4,400 $ft^3/s$ (125 $m^3/s$) on basis of peak discharge for former station near Woodruff; no flow for several days in water years 1971, 1974-78.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*) and peak discharges above base of 1,000 $ft^3/s$ (28.3 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|
| Mar. 1 | 2200 | *4,160 | 118 | 11.20 | 3.414 |
| Mar. 3 | 1000 | 1,870 | 53.0 | 7.65 | 2.332 |
| Aug. 11 | 0030 | 1,060 | 30.0 | 6.06 | 1.847 |

No flow for several days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 8.2 | 1.9 | 3.3 | 1.9 | .13 | 1600 | 10 | .34 | .00 | 1.0 | 3.6 | .95 |
| 2 | 9.1 | .84 | 3.7 | 1.2 | 2.9 | 1180 | 8.0 | .15 | .16 | .64 | 29 | 3.4 |
| 3 | 7.0 | 1.0 | 3.8 | .74 | 3.5 | 1360 | 7.0 | .07 | .04 | .13 | 51 | 3.5 |
| 4 | 8.8 | .74 | 3.2 | .93 | 3.4 | 483 | 5.0 | .55 | .00 | .04 | 2.8 | 2.5 |
| 5 | 8.8 | 2.4 | 3.0 | .84 | 3.1 | 252 | 4.0 | .23 | .00 | 1.1 | 1.8 | 1.2 |
| 6 | 61 | 1.5 | 2.7 | 1.2 | 1.7 | 341 | 2.0 | 1.6 | .10 | .30 | 4.2 | 1.5 |
| 7 | 64 | 2.3 | 2.9 | .74 | .69 | 200 | 1.3 | 1.7 | .84 | .13 | 3.4 | 3.8 |
| 8 | 21 | 2.2 | 3.0 | .50 | .21 | 113 | 3.6 | 2.0 | 1.5 | .38 | 20 | 4.0 |
| 9 | 4.1 | 2.2 | 2.6 | .74 | .30 | 69 | 4.9 | 1.5 | 1.2 | 1.2 | 13 | 1.7 |
| 10 | 2.2 | 2.2 | 2.5 | .50 | 3.3 | 48 | 3.4 | .62 | .50 | 2.7 | 128 | .58 |
| 11 | 1.6 | 1.6 | 1.0 | .30 | 2.6 | 35 | 1.9 | .93 | .26 | 1.4 | 307 | 1.1 |
| 12 | 2.1 | .68 | .36 | .22 | 3.7 | 25 | 2.4 | 1.9 | 1.0 | .82 | 212 | 2.9 |
| 13 | 4.1 | 2.2 | 1.2 | .16 | 4.3 | 22 | .99 | 2.0 | 1.1 | .60 | 37 | 1.4 |
| 14 | 3.8 | 2.1 | 1.4 | .50 | 4.8 | 18 | .34 | 2.2 | 2.0 | .73 | 11 | 2.5 |
| 15 | 3.8 | 2.2 | 2.1 | .50 | 5.4 | 20 | .00 | .84 | 2.2 | 1.0 | 4.2 | 1.1 |
| 16 | 3.6 | 2.8 | 2.0 | .37 | 5.7 | 20 | .00 | .19 | 1.2 | .57 | 2.6 | 3.6 |
| 17 | 2.2 | 2.7 | 1.7 | 1.1 | 4.5 | 15 | .00 | .19 | 1.4 | 4.0 | 2.3 | 60 |
| 18 | 1.4 | 2.1 | 1.6 | 3.2 | 5.2 | 12 | .00 | .84 | .44 | 8.0 | 7.8 | 5.5 |
| 19 | 1.9 | 3.5 | .98 | 2.9 | 4.5 | 12 | .00 | .44 | .10 | 5.0 | 10 | 2.3 |
| 20 | 2.5 | 2.9 | 2.4 | 2.5 | 4.3 | 12 | .78 | .00 | .26 | 1.8 | 9.2 | 1.9 |
| 21 | 1.2 | 2.0 | 2.5 | 2.7 | 4.4 | 12 | .55 | .00 | .44 | .99 | 5.8 | 3.1 |
| 22 | 1.2 | 2.1 | 1.6 | 1.9 | 4.8 | 12 | 2.0 | .04 | .26 | 8.4 | .78 | 4.8 |
| 23 | 1.1 | 4.8 | .93 | .84 | 5.8 | 12 | 2.0 | .50 | .07 | 3.9 | 3.1 | 18 |
| 24 | 1.4 | 4.2 | .74 | .37 | 4.9 | 12 | .82 | 2.4 | .00 | 3.4 | 4.2 | 5.1 |
| 25 | .22 | 3.6 | .64 | .22 | 4.6 | 37 | .13 | 1.5 | .00 | 1.3 | 1.9 | 7.4 |
| 26 | .93 | 3.4 | .64 | .13 | 4.4 | 42 | .00 | .84 | .00 | 74 | 1.1 | 4.9 |
| 27 | .84 | 4.0 | .64 | .04 | 4.7 | 30 | .00 | 1.2 | .37 | 124 | .31 | 6.1 |
| 28 | 2.5 | 3.4 | .37 | .02 | 6.3 | 20 | .39 | 2.5 | 16 | 23 | 1.9 | 5.6 |
| 29 | 1.7 | 3.2 | .30 | .04 | --- | 17 | 1.3 | 1.4 | 11 | 6.8 | 2.4 | 3.4 |
| 30 | 1.2 | 4.1 | .50 | .00 | --- | 13 | .90 | .84 | 2.7 | 3.5 | .85 | 3.4 |
| 31 | 1.5 | --- | .50 | .02 | --- | 11 | --- | .19 | --- | 2.2 | .29 | --- |
| TOTAL | 234.99 | 74.86 | 54.80 | 27.32 | 104.13 | 6055 | 63.70 | 29.70 | 45.14 | 283.03 | 882.53 | 167.23 |
| MEAN | 7.58 | 2.50 | 1.77 | .88 | 3.72 | 195 | 2.12 | .96 | 1.50 | 9.13 | 28.5 | 5.57 |
| MAX | 64 | 4.8 | 3.8 | 3.2 | 6.3 | 1600 | 10 | 2.5 | 16 | 124 | 307 | 60 |
| MIN | .22 | .68 | .30 | .00 | .13 | 11 | .00 | .00 | .00 | .04 | .29 | .58 |
| AC-FT | 466 | 148 | 109 | 54 | 207 | 12010 | 126 | 59 | 90 | 561 | 1750 | 332 |

CAL YR 1977 TOTAL 2696.43 MEAN 7.39 MAX 310 MIN .00 AC-FT 5350
WTR YR 1978 TOTAL 8022.43 MEAN 22.0 MAX 1600 MIN .00 AC-FT 15910

## 09394500 LITTLE COLORADO RIVER AT WOODRUFF, AZ

LOCATION.--Lat 34°46'58", long 110°02'37", in NE¼SW¼ sec.17, T.16 N., R.22 E., Navajo County, Hydrologic Unit 15020002, on left bank at abandoned county road bridge in Woodruff, 3.7 mi (6.0 km) downstream from Silver Creek.

DRAINAGE AREA.--8,100 $mi^2$ (21,000 $km^2$), approximately.

PERIOD OF RECORD.--March to May 1905; June to July 1905 (gage heights only); August 1905 to May 1907; July 1907 to April 1908, July to October 1908, December 1908, and December 1915 to September 1916 (gage heights only); October 1916 to August 1917 (monthly discharge only); September 1917 to March 1918, December 1918 to December 1919, April 1929 to December 1933, September 1935 to current year. Published as "near Woodruff" 1916-19, 1929-48.

REVISED RECORDS.--WSP 1049: 1917. WSP 1213: 1906, 1919(M).

GAGE.--Water-stage recorder. Datum of gage is 5,130.3 ft (1,563.72 m) National Geodetic Vertical Datum of 1929. See WSP 1733 for history of changes prior to Sept. 22, 1949.

REMARKS.--Records fair. Diversions above station for irrigation of about 22,000 acres (89.0 $km^2$) including a pump installation 1,000 ft (305 m) upstream installed in spring of 1973. Some regulation by reservoirs above station; combined capacity, about 73,000 acre-ft (90.0 $hm^3$), excluding Lone Pine Reservoir.

AVERAGE DISCHARGE.--49 years (water years 1906, 1917, 1930-33, 1936-78), 50.8 $ft^3/s$ (1.439 $m^3/s$), 36,800 acre-ft/yr (45.4 $hm^3/yr$); median of yearly mean discharges, 43 $ft^3/s$ (1.22 $m^3/s$), 31,200 acre-ft/yr (38 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge not determined, occurred Jan. 19, 1916; maximum discharge recorded, 25,000 $ft^3/s$ (708 $m^3/s$) Dec. 5, 1919; maximum gage height, 22.50 ft (6,858 m) from floodmark, Sept. 30, 1971; no flow at times in most years prior to 1960 and in 1974 and 1976.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*) and peak discharges above base of 1,900 $ft^3/s$ (54 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|
| Mar. 2 | 0300 | *4,470 | 127 | 15.57 | 4.746 |
| Mar. 3 | 1200 | 2,450 | 69.4 | 12.24 | 3.731 |

Minimum daily, 0.45 $ft^3/s$ (0.013 $m^3/s$) July 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 23 | 5.6 | 7.8 | 11 | 96 | 1190 | 8.6 | 4.6 | 1.0 | 1.8 | 21 | 15 |
| 2 | 23 | 5.2 | 7.4 | 10 | 49 | 2240 | 7.4 | 4.1 | .88 | 1.8 | 49 | 14 |
| 3 | 24 | 4.3 | 8.2 | 10 | 30 | 2020 | 7.0 | 4.1 | .88 | 1.5 | 126 | 13 |
| 4 | 23 | 3.8 | 9.0 | 9.0 | 22 | 794 | 6.0 | 3.8 | 2.9 | 1.5 | 11 | 12 |
| 5 | 24 | 3.8 | 7.8 | 9.0 | 20 | 466 | 5.0 | 4.3 | 3.3 | 1.4 | 3.1 | 11 |
| 6 | 130 | 7.8 | 7.4 | 9.0 | 18 | 571 | 4.5 | 5.6 | 2.9 | 1.8 | 4.6 | 11 |
| 7 | 442 | 15 | 7.8 | 8.0 | 15 | 472 | 4.3 | 98 | 1.8 | 1.9 | 5.2 | 10 |
| 8 | 75 | 22 | 7.8 | 8.0 | 13 | 264 | 4.1 | 29 | 2.3 | .75 | 8.2 | 7.4 |
| 9 | 27 | 23 | 8.2 | 7.0 | 12 | 165 | 6.6 | 13 | 3.8 | 1.2 | 19 | 6.3 |
| 10 | 15 | 14 | 7.8 | 7.4 | 11 | 100 | 7.0 | 7.0 | 1.8 | .45 | 98 | 4.6 |
| 11 | 17 | 10 | 7.4 | 7.4 | 11 | 60 | 6.3 | 4.6 | 2.3 | 1.3 | 388 | 3.6 |
| 12 | 13 | 8.6 | 5.6 | 6.6 | 9.9 | 38 | 4.9 | 4.3 | 1.5 | .95 | 274 | 3.6 |
| 13 | 10 | 6.6 | 4.1 | 5.9 | 11 | 32 | 5.2 | 5.6 | 1.3 | 2.3 | 128 | 4.9 |
| 14 | 7.8 | 7.8 | 3.3 | 5.9 | 14 | 23 | 4.3 | 5.2 | 1.3 | 2.3 | 15 | 3.8 |
| 15 | 5.9 | 6.6 | 6.6 | 7.4 | 18 | 24 | 3.8 | 4.9 | 1.5 | .88 | 10 | 4.3 |
| 16 | 4.9 | 7.0 | 7.0 | 7.8 | 28 | 24 | 3.6 | 4.1 | 1.4 | 2.6 | 5.0 | 10 |
| 17 | 4.1 | 6.6 | 6.3 | 7.8 | 30 | 18 | 3.3 | 3.3 | 1.1 | 3.1 | 4.0 | 63 |
| 18 | 3.5 | 6.3 | 7.4 | 8.6 | 18 | 15 | 3.3 | 3.5 | 1.6 | 5.9 | 3.0 | 15 |
| 19 | 3.3 | 4.9 | 7.8 | 12 | 18 | 12 | 3.6 | 4.1 | 2.3 | 6.6 | 138 | 6.6 |
| 20 | 3.3 | 7.0 | 5.6 | 15 | 19 | 11 | 3.6 | 2.7 | 1.9 | 3.8 | 300 | 4.3 |
| 21 | 3.8 | 5.2 | 15 | 15 | 18 | 9.9 | 4.1 | 2.9 | 1.8 | 2.3 | 81 | 3.6 |
| 22 | 3.5 | 4.6 | 15 | 20 | 23 | 11 | 4.1 | 3.3 | 1.8 | .80 | 24 | 2.9 |
| 23 | 3.1 | 4.6 | 14 | 26 | 18 | 15 | 5.2 | 3.3 | 1.3 | 5.6 | 24 | 15 |
| 24 | 3.5 | 7.4 | 14 | 16 | 13 | 13 | 5.2 | 3.8 | 1.1 | 4.1 | 23 | 9.0 |
| 25 | 3.1 | 6.6 | 13 | 19 | 11 | 40 | 4.6 | 4.9 | 1.5 | 4.3 | 22 | 32 |
| 26 | 3.1 | 6.3 | 13 | 15 | 9.9 | 53 | 3.8 | 4.6 | 1.3 | 33 | 21 | 39 |
| 27 | 2.9 | 6.6 | 13 | 13 | 8.6 | 38 | 3.3 | 2.1 | 1.4 | 317 | 20 | 13 |
| 28 | 3.3 | 7.0 | 12 | 15 | 9.4 | 26 | 3.1 | 4.1 | 1.6 | 37 | 19 | 8.2 |
| 29 | 3.8 | 6.3 | 12 | 17 | --- | 18 | 3.6 | 4.9 | 18 | 22 | 18 | 5.6 |
| 30 | 11 | 6.6 | 11 | 16 | --- | 15 | 4.6 | 4.3 | 4.6 | 21 | 17 | 3.3 |
| 31 | 13 | --- | 11 | 91 | --- | 11 | --- | 1.8 | --- | 20 | 16 | --- |
| TOTAL | 932.9 | 237.1 | 283.3 | 435.8 | 573.8 | 8788.9 | 144.0 | 255.8 | 72.16 | 510.93 | 1895.1 | 355.0 |
| MEAN | 30.1 | 7.90 | 9.14 | 14.1 | 20.5 | 284 | 4.80 | 8.25 | 2.41 | 16.5 | 61.1 | 11.8 |
| MAX | 442 | 23 | 15 | 91 | 96 | 2240 | 8.6 | 98 | 18 | 317 | 388 | 63 |
| MIN | 2.9 | 3.8 | 3.3 | 5.9 | 8.6 | 9.9 | 3.1 | 1.8 | .88 | .45 | 3.0 | 2.9 |
| AC-FT | 1850 | 470 | 562 | 864 | 1140 | 17430 | 286 | 507 | 143 | 1010 | 3760 | 704 |

CAL YR 1977 TOTAL 6645.90 MEAN 18.2 MAX 454 MIN .50 AC-FT 13180
WTR YR 1978 TOTAL 14484.79 MEAN 39.7 MAX 2240 MIN .45 AC-FT 28730

NOTE.--No gage-height record Mar. 2.

## 09395900 BLACK CREEK NEAR LUPTON, AZ

LOCATION.--Lat 35°27'09", long 109°07'30", in E½NE¼ sec.26, T.24 N., R.30 E. (unsurveyed), Apache County, Hydrologic Unit 15020006, in Navajo Indian Reservation, on downstream end of center bridge pier on State Highway 166, 7 mi (11 km) upstream from West Fork, and 8 mi (13 km) northwest of Lupton, and 16 mi (26 km) south of Window Rock.

DRAINAGE AREA.--500 $mi^2$ (1,300 $km^2$), approximately.

PERIOD OF RECORD.--August 1964 to December 1972, May 1974 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 6,550 ft (1,996 m), from topographic map. Prior to May 1974 at site 160 ft (49 m) downstream at same datum.

REMARKS.--Records poor. Small diversions above station for irrigation and stock water. Red Lake, near headwaters 35 mi (56 km) upstream, was built in 1954, with capacity of 9,700 acre-ft (12.0 $hm^3$), but silting may have reduced this amount.

AVERAGE DISCHARGE.--12 years, 7.18 $ft^3/s$ (0.203 $m^3/s$), 5,200 acre-ft/yr (6.41 $hm^3/yr$); median of yearly mean discharges, 6.4 $ft^3/s$ (0.18 $m^3/s$), 4,600 acre-ft/yr (5.7 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,160 $ft^3/s$ (203 $m^3/s$) Aug. 17, 1977, gage height, 9.35 ft (2.85 m), from rating curve extended above 90 $ft^3/s$ (2.55 $m^3/s$) on basis of slope-area measurement of peak flow; no flow for many days each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 72 $ft^3/s$ (2.04 $m^3/s$) Mar. 1, gage height, 3.81 ft (1.161 m), no peak above base of 1,500 $ft^3/s$ (42 $m^3/s$); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .10 | 1.0 | .10 | .40 | 2.0 | 23 | .20 | 2.6 | .00 | .00 | .50 | .50 |
| 2 | .10 | .90 | .10 | .40 | 3.8 | 24 | 2.0 | 3.2 | .00 | .00 | .50 | .40 |
| 3 | .10 | .90 | .10 | .40 | 3.1 | 29 | 1.0 | 2.5 | .00 | .00 | 3.6 | .40 |
| 4 | .10 | .90 | .10 | .40 | 2.2 | 10 | .50 | 1.8 | .00 | .00 | .50 | .20 |
| 5 | .10 | .90 | .10 | .40 | 1.9 | 5.0 | .00 | 2.8 | .00 | .00 | .50 | .20 |
| 6 | 1.6 | 1.7 | .50 | .40 | 2.0 | 4.0 | .00 | 5.4 | .00 | .00 | .50 | .20 |
| 7 | 2.8 | 6.5 | 3.0 | .40 | 2.0 | 2.0 | .00 | 11 | .00 | .00 | .50 | .20 |
| 8 | 1.9 | 4.6 | 3.6 | .50 | 2.0 | 1.0 | .00 | 6.1 | .00 | .00 | .50 | .20 |
| 9 | 1.2 | 3.0 | 3.1 | .60 | 2.0 | 1.0 | .00 | 2.0 | .00 | .00 | .50 | .20 |
| 10 | 1.1 | 2.7 | 3.8 | .70 | 2.0 | 2.0 | .00 | .30 | .00 | .00 | .50 | .20 |
| 11 | .80 | 1.0 | 2.8 | .80 | 4.9 | 2.0 | .00 | 3.9 | .00 | .00 | .50 | .20 |
| 12 | .80 | .50 | 2.4 | .80 | 5.7 | 10 | .00 | 4.0 | .00 | 2.0 | .50 | .20 |
| 13 | .80 | .30 | 1.7 | .80 | 3.3 | 8.0 | .00 | 2.0 | .00 | 1.0 | .50 | .20 |
| 14 | .80 | .20 | 1.0 | .80 | 4.2 | 8.2 | .00 | .20 | .00 | .50 | .50 | .20 |
| 15 | .90 | .10 | .40 | 3.6 | 5.0 | 6.4 | .00 | .10 | .00 | .00 | .50 | .10 |
| 16 | .90 | .10 | .40 | 2.0 | 2.0 | 5.5 | .00 | .00 | .00 | .00 | .50 | .10 |
| 17 | .90 | .10 | .40 | 2.0 | 2.0 | 4.4 | .00 | .00 | .00 | .00 | .50 | 2.0 |
| 18 | .90 | .10 | .40 | 1.4 | 1.0 | 4.0 | .00 | .00 | .00 | .00 | .50 | 1.0 |
| 19 | .90 | .10 | .40 | 1.0 | .80 | 2.0 | .00 | .00 | .00 | 1.0 | .50 | .00 |
| 20 | .90 | .10 | .40 | 1.0 | .80 | 5.8 | .00 | .00 | .00 | .50 | 1.0 | .00 |
| 21 | 1.0 | .10 | .40 | 1.0 | 2.0 | 9.1 | .00 | .00 | .00 | .00 | 3.0 | .00 |
| 22 | 1.0 | .10 | .90 | 1.0 | 2.0 | 9.4 | .00 | .00 | .00 | .00 | 5.0 | .00 |
| 23 | 1.0 | .10 | 1.0 | 1.0 | .80 | 13 | .00 | .00 | .00 | .00 | 2.5 | 1.3 |
| 24 | 1.0 | .10 | .80 | .80 | .80 | 9.1 | .00 | .00 | .00 | 2.5 | .50 | 8.4 |
| 25 | .90 | .10 | .60 | .80 | .80 | 7.1 | .00 | .00 | .00 | 4.0 | .50 | 7.9 |
| 26 | .90 | .10 | .40 | .80 | .80 | 5.0 | .00 | .00 | .00 | 2.0 | .50 | 2.0 |
| 27 | .90 | .10 | .40 | .80 | .80 | 2.0 | .00 | .00 | .00 | 1.0 | .50 | 1.0 |
| 28 | .90 | .10 | .40 | .80 | 6.6 | 1.0 | .00 | .00 | .00 | 5.6 | .50 | .50 |
| 29 | 1.4 | .10 | .40 | .80 | --- | .80 | .00 | .00 | .00 | 2.0 | .50 | .50 |
| 30 | 1.4 | .10 | .40 | .80 | --- | .40 | .00 | .00 | .00 | 1.0 | .50 | .50 |
| 31 | 1.1 | --- | .40 | .80 | --- | .20 | --- | .00 | --- | .50 | .40 | --- |
| TOTAL | 29.20 | 26.70 | 30.90 | 28.20 | 67.30 | 214.40 | 3.70 | 47.90 | .00 | 23.60 | 28.00 | 28.80 |
| MEAN | .94 | .89 | 1.00 | .91 | 2.40 | 6.92 | .12 | 1.55 | .000 | .76 | .90 | .96 |
| MAX | 2.8 | 6.5 | 3.8 | 3.6 | 6.6 | 29 | 2.0 | 11 | .00 | 5.6 | 5.0 | 8.4 |
| MIN | .10 | .10 | .10 | .40 | .80 | .20 | .00 | .00 | .00 | .00 | .40 | .00 |
| AC-FT | 58 | 53 | 61 | 56 | 133 | 425 | 7.3 | 95 | .00 | 47 | 56 | 57 |

CAL YR 1977 TOTAL 2450.50 MEAN 6.71 MAX 700 MIN .00 AC-FT 4860
WTR YR 1978 TOTAL 528.70 MEAN 1.45 MAX 29 MIN .00 AC-FT 1050

NOTE.--No gage-height record Dec. 14 to Jan. 14 and July 24 to Aug. 23.

## 09396100 PUERCO RIVER NEAR CHAMBERS, AZ

LOCATION.--Lat 35°10'42", long 109°27'15", in SW¼NW¼ sec.35, T.21 N., R.27 E., Apache County, Hydrologic Unit 15020007, on upstream side of right abutment of Archison, Topeka, and Santa Fe Railway Co. bridge, 1.5 mi (2.4 km) southwest of Chambers.

DRAINAGE AREA.--2,160 $mi^2$ (5,600 $km^2$), approximately.

PERIOD OF RECORD.--Water years 1971-72 (annual maximums only), January 1973 to current year (discharge above 500 $ft^3/s$ or 14 $m^3/s$ only).

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 5,705 ft (1,738.9 m), from topographic map.

REMARKS.--Records poor. Only daily discharges above 500 $ft^3/s$ (14 $m^3/s$) are published. Small diversions above station for irrigation and livestock. Red Lake, near the headwaters of Black Creek, was built in 1954, with a capacity of 9,700 acre-ft (12.0 $hm^3$), but capacity may have been reduced by silting.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,800 $ft^3/s$ (504 $m^3/s$) Sept. 30, 1971, gage height, 9.65 ft (2.941 m); no flow observed on many days each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 603 $ft^3/s$ (17.1 $m^3/s$), Oct. 7, gage height, 1.08 ft (0.329 m), no peak above base of 3,000 $ft^3/s$ (85 $m^3/s$); no flow observed on several days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
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## 09397300 LITTLE COLORADO RIVER NEAR JOSEPH CITY, AZ

LOCATION.--Lat 34°54'04", long 110°15'17", in NE¼SE¼ sec.6, T.17 N., R.20 E., Navajo County, Hydrologic Unit 15020008, on right bank just upstream from diversion dam, 5.4 mi (8.7 km) west of Holbrook, 5.7 mi (9.2 km) southeast of Joseph City, and 8.5 mi (13.7 km) downstream from Puerco River.

DRAINAGE AREA.--12,200 $mi^2$ (31,600 $km^2$), approximately.

PERIOD OF RECORD.--July 1973 to current year (daily discharge only for those days on which instantaneous discharge exceeds 500 $ft^3/s$ or 14 $m^3/s$).

GAGE.--Water-stage recorder and concrete diversion dam. Datum of gage is 5,031.10 ft (1,533.479 m) National Geodetic Vertical Datum of 1929 (Corps of Engineers bench mark).

REMARKS.--Records poor. Published record includes only those days when instantaneous discharge over the crest of the dam exceeds 500 $ft^3/s$ (14 $m^3/s$). Diversions above station for irrigation of about 23,000 acres (93 $km^2$), diversions at dam on right bank of most low flows for irrigation of about 1,500 acres (6.07 $km^2$) in vicinity of Joseph City. Some regulation by reservoirs; combined capacity of principal reservoirs, about 83,000 acre-ft (100 $hm^3$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,600 $ft^3/s$ (583 $m^3/s$) Oct. 29, 1974, gage height, 6.90 ft (2.103 m), from rating curve extended above 7,000 $ft^3/s$ (198 $m^3/s$) on basis of slope-area measurement at gage height 6.82 ft (2.079 m).

EXTREMES OUTSIDE PERIOD OF RECORD.--A discharge of 60,000 $ft^3/s$ (1,700 $m^3/s$) was determined for peak of Sept. 19, 1923, at Holbrook (see prior records for sta 09397000, Little Colorado River at Holbrook, for this peak and other peaks 1905-6, 1949-73).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,200 $ft^3/s$ (147 $m^3/s$) Mar. 1, gage height, 4.00 ft (1.219 m), base discharge, 5,000 $ft^3/s$ (142 $m^3/s$).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | --- | --- | | --- | 419 | 1490 | | | | | | |
| 2 | --- | --- | | --- | --- | 1810 | | | | | | |
| 3 | --- | --- | | --- | --- | 410 | | | | | | |
| 4 | --- | --- | | --- | --- | --- | | | | | | |
| 5 | --- | --- | | --- | --- | --- | | | | | | |
| 6 | 465 | --- | | --- | --- | --- | | | | | | |
| 7 | 772 | 224 | | --- | --- | --- | | | | | | |
| 8 | --- | --- | | --- | --- | --- | | | | | | |
| 9 | --- | --- | | --- | --- | --- | | | | | | |
| 10 | --- | --- | | --- | --- | --- | | | | | | |
| 11 | --- | --- | | --- | --- | --- | | | | | | |
| 12 | --- | --- | | --- | --- | --- | | | | | | |
| 13 | --- | --- | | --- | --- | --- | | | | | | |
| 14 | --- | --- | | --- | --- | --- | | | | | | |
| 15 | --- | --- | | --- | --- | --- | | | | | | |
| 16 | --- | --- | | --- | --- | --- | | | | | | |
| 17 | --- | --- | | --- | --- | --- | | | | | | |
| 18 | --- | --- | | --- | --- | --- | | | | | | |
| 19 | --- | --- | | --- | --- | --- | | | | | | |
| 20 | --- | --- | | --- | --- | --- | | | | | | |
| 21 | --- | --- | | --- | --- | --- | | | | | | |
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| 23 | --- | --- | | --- | --- | --- | | | | | | |
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| 29 | --- | --- | | --- | --- | --- | | | | | | |
| 30 | --- | --- | | --- | --- | --- | | | | | | |
| 31 | --- | --- | | 666 | --- | --- | | | | | | |

## 09398300 BLUE RIDGE RESERVOIR NEAR PINE, AZ

LOCATION.--Lat 34°33'19", long 111°11'00", in NE¼SE¼ sec.33, T.14 N., R.11 E., Coconino County, Hydrologic Unit 15020008, in Coconino National Forest, on upstream side of left end of spillway structure of Blue Ridge Dam on East Clear Creek, at mouth of General Springs Canyon, 7.3 mi (11.7 km) east of Clints Well and 20 mi (32 km) northeast of Pine.

DRAINAGE AREA.--71.1 $mi^2$ (184.1 $km^2$).

PERIOD OF RECORD.--December 1964 to March 1965 (periodic elevations only), April 1965 to current year.

GAGE.--Water-stage recorder. Datum of gage is 6,620 ft (2,018 m) National Geodetic Vertical Datum of 1929; gage readings have been reduced to elevations NGVD. Prior to Apr. 2, 1965, nonrecording-gage readings (at intervals of 3 to 8 days) at NGVD.

REMARKS.--Reservoir is formed by a concrete arch dam. Dam completed and storage began in December 1964. Total capacity is 19,500 acre-ft (24.0 $hm^3$) at elevation 6,735 ft (2,053 m), of which 15,000 acre-ft (18.5 $hm^3$) is usable storage below 6,720 ft (2,048 m)—crest of spillway. Drawdown below elevation 6,640 ft (2,024 m)—capacity, 2,120 acre-ft (2.61 $hm^3$)—for diversion to East Verde River is not permitted. Figures given herein represent total contents. Reservoir is used as a basin for pumping water to East Verde River. (See records for East Verde River diversion from East Clear Creek, near Pine.)

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, about 16,000 acre-ft (19.7 $hm^3$) Dec. 30, 1965, based on outflow studies and weather records; minimum since reservoir filled (April 1965), 1,850 acre-ft (2.28 $hm^3$) Dec. 12, 1967, elevation, 6,636.68 ft (2,022.860 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 15,810 acre-ft (19.5 $hm^3$) Mar. 2, elevation, 6,722.82 ft (2,049.116 m); minimum, 2,000 acre-ft (2.47 $hm^3$) Jan. 14, elevation, 6,638.54 ft (2,023.427 m).

Capacity table (elevation, in feet, and contents, in acre-feet)
(Based on surveys by Leeds, Hill, and Jewett, Inc., January 1962)

| | | | |
|---|---|---|---|
| 6,630 | 1,400 | 6,700 | 10,260 |
| 6,640 | 2,120 | 6,720 | 15,000 |
| 6,660 | 3,920 | 6,730 | 17,960 |
| 6,680 | 6,580 | | |

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
INSTANTANEOUS OBSERVATIONS AT 2400

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2270 | 2220 | 2110 | 2020 | 2760 | 14580 | --- | 14710 | 12760 | 10810 | 9130 | 7430 |
| 2 | 2270 | 2220 | 2110 | 2020 | 2910 | 15810 | --- | 14660 | 12680 | 10760 | 9080 | 7380 |
| 3 | 2270 | 2210 | 2110 | 2020 | 3030 | 15460 | --- | 14670 | 12610 | 10700 | 9020 | 7320 |
| 4 | 2270 | 2210 | 2100 | 2020 | 3120 | 15280 | --- | 14680 | 12540 | 10640 | 8960 | 7260 |
| 5 | 2260 | 2210 | 2100 | 2010 | 3210 | 15480 | --- | 14640 | 12460 | 10590 | 8910 | 7210 |
| 6 | 2270 | 2210 | 2090 | 2010 | 3390 | 15290 | --- | 14600 | 12390 | 10530 | 8850 | 7150 |
| 7 | 2270 | 2210 | 2090 | 2010 | 3600 | 15210 | 15160 | 14560 | 12330 | 10480 | 8800 | 7090 |
| 8 | 2280 | 2200 | 2080 | 2010 | 3750 | 15000 | 15130 | 14510 | 12270 | 10420 | 8740 | 7040 |
| 9 | 2280 | 2200 | 2080 | 2010 | 3870 | 15190 | 15090 | 14450 | 12190 | 10380 | 8690 | 6980 |
| 10 | 2280 | 2200 | 2080 | 2010 | 3970 | 15150 | 15100 | 14380 | 12130 | 10320 | 8630 | 6920 |
| 11 | 2270 | 2200 | 2080 | 2010 | 4040 | 15120 | 15140 | 14310 | 12050 | 10280 | 8580 | 6860 |
| 12 | 2270 | 2200 | 2070 | 2010 | 4130 | 15100 | 15160 | 14240 | 11980 | 10230 | 8530 | 6800 |
| 13 | 2270 | 2190 | 2070 | 2010 | 4210 | 15080 | 15160 | 14180 | 11930 | 10190 | 8490 | 6740 |
| 14 | 2270 | 2190 | 2070 | 2000 | 4270 | 15080 | 15150 | 14100 | 11860 | 10120 | 8440 | 6680 |
| 15 | 2260 | 2180 | 2060 | 2010 | 4320 | 15060 | 15140 | 14010 | 11800 | 10080 | 8390 | 6630 |
| 16 | 2260 | 2180 | 2060 | 2010 | 4350 | 15070 | 15100 | 13930 | 11730 | 10020 | 9340 | 6580 |
| 17 | 2260 | 2170 | 2060 | 2030 | 4380 | 15090 | 15080 | 13850 | 11670 | 9990 | 8300 | 6520 |
| 18 | 2260 | 2170 | 2060 | 2050 | 4410 | --- | 15060 | 13780 | 11600 | 9930 | 8240 | 6470 |
| 19 | 2250 | 2160 | 2050 | 2070 | 4410 | --- | 15070 | 13720 | 11540 | 9870 | 8190 | 6410 |
| 20 | 2250 | 2160 | 2050 | 2080 | 4390 | --- | 15060 | 13640 | 11480 | 9820 | 8140 | 6360 |
| 21 | 2250 | 2160 | 2040 | 2090 | 4380 | --- | 15040 | 13570 | 11420 | 9770 | 8080 | 6310 |
| 22 | 2240 | 2150 | 2040 | 2100 | 4390 | --- | 15020 | 13500 | 11360 | 9720 | 8040 | 6260 |
| 23 | 2240 | 2150 | 2040 | 2110 | 4430 | --- | 15000 | 13430 | 11300 | 9640 | 7980 | 6210 |
| 24 | 2240 | 2140 | 2040 | 2120 | 4500 | --- | 14990 | 13350 | 11240 | 9590 | 7920 | 6140 |
| 25 | 2240 | 2140 | 2030 | 2120 | 4600 | --- | 14970 | 13270 | 11180 | 9540 | 7870 | 6110 |
| 26 | 2230 | 2140 | 2030 | 2130 | 4720 | --- | 14950 | 13200 | 11120 | 9490 | 7810 | 6060 |
| 27 | 2230 | 2130 | 2030 | 2140 | 4840 | --- | 14920 | 13130 | 11054 | 9440 | 7750 | 6010 |
| 28 | 2230 | 2130 | 2030 | 2140 | 7060 | --- | 14880 | 13050 | 10980 | 9380 | 7680 | 5950 |
| 29 | 2230 | 2120 | 2030 | 2160 | --- | --- | 14820 | 12980 | 10930 | 9330 | 7630 | 5900 |
| 30 | 2220 | 2120 | 2030 | 2190 | --- | --- | 14760 | 12910 | 10870 | 9270 | 7560 | 5850 |
| 31 | 2220 | --- | 2030 | 2500 | --- | 15100 | --- | 12820 | --- | 9200 | 7500 | --- |
| MAX | 2280 | 2220 | 2110 | 2500 | 7060 | --- | --- | 14710 | 12760 | 10810 | 9340 | 7430 |
| MIN | 2220 | 2120 | 2030 | 2000 | 2760 | --- | --- | 12820 | 10870 | 9200 | 7500 | 5850 |
| (†) | 6641.28 | 6639.98 | 6638.83 | 6644.70 | 6682.97 | --- | 6719.09 | 6711.39 | 6702.95 | 6694.68 | 6685.66 | 6674.79 |
| (‡) | -60 | -100 | -90 | +470 | +4560 | +8040 | -340 | -1940 | -1950 | -1670 | -1700 | -1650 |

CAL YR 1977 ..... ‡ -180
WTR YR 1978 ..... ‡ +3,570

† Elevation, in feet, at end of month.
‡ Change in contents, in acre-feet.
NOTE.--No gage-height record on days when no values of contents are listed except at monthend, when contents are estimated.

## 09398500 CLEAR CREEK BELOW WILLOW CREEK, NEAR WINSLOW, AZ

LOCATION.--Lat 34°40'03", long 111°00'25", in SW¼SE¼ sec.19, T.15 N., R.13 E., Coconino County, Hydrologic Unit 15020008, in Sitgreaves National Forest, on right bank 2 mi (3 km) downstream from Willow Creek and 30 mi (48 km) southwest of Winslow.

DRAINAGE AREA.--321 $mi^2$ (831 $km^2$).

PERIOD OF RECORD.--June 1947 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 5,957 ft (1,815.7 m), from Topographic Division by photogrammetry.

REMARKS.--Records fair. Flow is partially controlled by Blue Ridge Reservoir (usable capacity, 15,000 acre-ft or 18.5 $hm^3$) about 20 mi (32 km) upstream. (See sta 09398300.) Diversion to East Verde River from Blue Ridge Reservoir. (See sta 09507580.)

AVERAGE DISCHARGE (unadjusted for diversion or storage).--31 years, 78.0 $ft^3/s$ (2.209 $m^3/s$), 56,510 acre-ft/yr (69.7 $hm^3/yr$); median of yearly mean discharges, 58 $ft^3/s$ (1.64 $m^3/s$), 42,000 acre-ft/yr (52 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,400 $ft^3/s$ (464 $m^3/s$) Jan. 18, 1952, gage height, 21.5 ft (6.55 m), from rating curve extended above 6,000 $ft^3/s$ (170 $m^3/s$); no flow at times in most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*), (from rating curve extended above 6,000 $ft^3/s$ or 170 $m^3/s$) and peak discharges above base of 500 $ft^3/s$ (14 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) | Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mar. 1 | 1230 | *10,500 | 297 | 17.48 | 5.328 | Apr. 1 | 1345 | 1,700 | 48.1 | 9.43 | 2.874 |
| Mar. 3 | 0715 | 4,370 | 124 | 12.85 | 3.917 | Apr. 11 | 1930 | 542 | 15.3 | 6.85 | 2.088 |
| Mar. 22 | 2345 | 3,120 | 88.4 | 11.46 | 3.493 | | | | | | |

No flow for most of year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .00 | .00 | .00 | .00 | 54 | 6100 | 1470 | 114 | .00 | .00 | .00 | .00 |
| 2 | .00 | .00 | .00 | .00 | 98 | 2400 | 1140 | 83 | .00 | .00 | .00 | .00 |
| 3 | .00 | .00 | .00 | .00 | 60 | 3460 | 857 | 64 | .00 | .00 | .00 | .00 |
| 4 | .00 | .00 | .00 | .00 | 43 | 1830 | 728 | 49 | .00 | .00 | .00 | .00 |
| 5 | .00 | .00 | .00 | .00 | 42 | 1430 | 698 | 39 | .00 | .00 | .00 | .00 |
| 6 | .00 | .00 | .00 | .00 | 41 | 1640 | 642 | 33 | .00 | .00 | .00 | .00 |
| 7 | .00 | .00 | .00 | .00 | 67 | 1040 | 624 | 30 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | 83 | 773 | 463 | 30 | .00 | .00 | .00 | .00 |
| 9 | .00 | .00 | .00 | .00 | 72 | 698 | 306 | 30 | .00 | .00 | .00 | .00 |
| 10 | .00 | .00 | .00 | .00 | 64 | 663 | 291 | 30 | .00 | .00 | .00 | .00 |
| 11 | .00 | .00 | .00 | .00 | 58 | 539 | 412 | 30 | .00 | .00 | .00 | .00 |
| 12 | .00 | .00 | .00 | .00 | 40 | 444 | 446 | 26 | .00 | .00 | .00 | .00 |
| 13 | .00 | .00 | .00 | .00 | 45 | 358 | 238 | 21 | .00 | .00 | .00 | .00 |
| 14 | .00 | .00 | .00 | .00 | 42 | 281 | 241 | 18 | .00 | .00 | .00 | .00 |
| 15 | .00 | .00 | .00 | .00 | 32 | 254 | 221 | 14 | .00 | .00 | .00 | .00 |
| 16 | .00 | .00 | .00 | .00 | 28 | 228 | 207 | 12 | .00 | .00 | .00 | .00 |
| 17 | .00 | .00 | .00 | .00 | 24 | 219 | 191 | 9.5 | .00 | .00 | .00 | .00 |
| 18 | .00 | .00 | .00 | .00 | 20 | 300 | 163 | 7.5 | .00 | .00 | .00 | .00 |
| 19 | .00 | .00 | .00 | .00 | 16 | 471 | 135 | 5.8 | .00 | .00 | .00 | .00 |
| 20 | .00 | .00 | .00 | 2.4 | 19 | 963 | 126 | 4.6 | .00 | .00 | .00 | .00 |
| 21 | .00 | .00 | .00 | 3.3 | 20 | 1140 | 118 | 3.5 | .00 | .00 | .00 | .00 |
| 22 | .00 | .00 | .00 | 2.8 | 20 | 2230 | 118 | 2.6 | .00 | .00 | .00 | .00 |
| 23 | .00 | .00 | .00 | 2.4 | 30 | 2180 | 113 | 1.8 | .00 | .00 | .00 | .00 |
| 24 | .00 | .00 | .00 | 2.1 | 44 | 1420 | 91 | 1.2 | .00 | .00 | .00 | .00 |
| 25 | .00 | .00 | .00 | 1.7 | 61 | 1220 | 75 | .81 | .00 | .00 | .00 | .00 |
| 26 | .00 | .00 | .00 | 1.2 | 82 | 1080 | 62 | .54 | .00 | .00 | .00 | .00 |
| 27 | .00 | .00 | .00 | .76 | 99 | 1070 | 66 | .36 | .00 | .00 | .00 | .00 |
| 28 | .00 | .00 | .00 | .62 | 609 | 1100 | 58 | .25 | .00 | .00 | .00 | .00 |
| 29 | .00 | .00 | .00 | .54 | --- | 1030 | 78 | .14 | .00 | .00 | .00 | .00 |
| 30 | .00 | .00 | .00 | .54 | --- | 1020 | 142 | .08 | .00 | .00 | .00 | .00 |
| 31 | .00 | --- | .00 | .86 | --- | 1200 | --- | .00 | --- | .00 | .00 | --- |
| TOTAL | .00 | .00 | .00 | 19.22 | 1913 | 38781 | 10520 | 661.68 | .00 | .00 | .00 | .00 |
| MEAN | .000 | .000 | .000 | .62 | 68.3 | 1251 | 351 | 21.3 | .000 | .000 | .000 | .000 |
| MAX | .00 | .00 | .00 | 3.3 | 609 | 6100 | 1470 | 114 | .00 | .00 | .00 | .00 |
| MIN | .00 | .00 | .00 | .00 | 16 | 219 | 58 | .00 | .00 | .00 | .00 | .00 |
| AC-FT | .00 | .00 | .00 | 38 | 3790 | 76920 | 20870 | 1310 | .00 | .00 | .00 | .00 |

CAL YR 1977 TOTAL 3272.18 MEAN 8.96 MAX 295 MIN .00 AC-FT 6490
WTR YR 1978 TOTAL 51894.90 MEAN 142 MAX 6100 MIN .00 AC-FT 102900

## 09399000 CLEAR CREEK NEAR WINSLOW, AZ

LOCATION.--Lat 34°58'10", long 110°38'40", in SE¼SE¼ sec.9, T.18 N., R.16 E., Navajo County, Hydrologic Unit 15020008, on right bank 10 ft (3.0 m) downstream from bridge on State Highway 99, 1.5 mi (2.4 km) upstream from mouth, and 5 mi (8 km) southeast of Winslow.

DRAINAGE AREA.--607 $mi^2$ (1,572 $km^2$).

PERIOD OF RECORD.--June to December 1906, January 1907 to January 1909 (gage heights only), March 1929 to February 1934, September 1935 to current year.

REVISED RECORDS.--WSP 859: 1929.

GAGE.--Water-stage recorder with diversion dam 1,200 ft (366 m) downstream as control. Datum of gage is 4,861.32 ft (1,481.730 m) National Geodetic Vertical Datum of 1929. See WSP 1713, 1733, or 1926 for history of changes prior to July 10, 1931.

REMARKS.--Records fair. Records show discharge over dam and do not include flow in canal that diverts at dam or leakage through dam. Storage in and diversion from Blue Ridge Reservoir near Pine, about 50 mi (80 km) upstream, since December 1964. (See sta 09398300.)

AVERAGE DISCHARGE.--47 years (water years 1930-33, 1936-78), 77.2 $ft^3/s$ (2.186 $m^3/s$), 55,930 acre-ft/yr (69.0 $hm^3/yr$); median of yearly mean discharges, 59 $ft^3/s$ (1.67 $m^3/s$), 42,700 acre-ft/yr (53 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 50,000 $ft^3/s$ (1,420 $m^3/s$) Apr. 4, 1929, gage height, 18.1 ft (5.52 m), present datum, from rating curve extended above 13,500 $ft^3/s$ (382 $m^3/s$) on basis of velocity-area studies and verified by slope-area measurement at gage height 13.4 ft (4.08 m); no flow for many days in most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Floodmarks 3 ft (0.9 m) higher than stage of flood of Apr. 4, 1929, were found 1,850 ft (564 m) downstream from gage in 1929.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*) and peak discharges above base of 500 $ft^3/s$ (14 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) | Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mar. 1 | 2330 | *12,900 | 365 | 12.03 | 3.667 | Apr. 2 | 0800 | 1,580 | 44.7 | 7.59 | 2.313 |
| Mar. 3 | 2215 | 5,000 | 142 | 9.41 | 2.868 | Apr. 14 | 1115 | 619 | 17.5 | 6.71 | 2.045 |
| Mar. 23 | 1330 | 3,440 | 97.4 | 8.70 | 2.652 | | | | | | |

No flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .00 | .15 | .37 | .33 | .57 | 1940 | 1080 | 61 | .88 | .93 | 1.7 | .32 |
| 2 | .00 | .15 | .35 | .33 | .54 | 6150 | 1400 | 53 | .90 | .99 | 1.7 | .37 |
| 3 | .00 | .13 | .35 | .33 | .54 | 2910 | 976 | 45 | .78 | .98 | 1.7 | .37 |
| 4 | .00 | .12 | .34 | .32 | .54 | 3240 | 770 | 42 | .75 | .94 | 1.7 | .37 |
| 5 | .00 | .27 | .33 | .33 | .54 | 1530 | 672 | 40 | .79 | .91 | 1.7 | .35 |
| 6 | .48 | .42 | .30 | .33 | .57 | 1550 | 649 | 90 | .90 | .90 | 1.7 | .34 |
| 7 | .42 | .47 | .30 | .33 | .55 | 1380 | 600 | 109 | .87 | .93 | 1.7 | .33 |
| 8 | .04 | .47 | .29 | .33 | .53 | 909 | 580 | 75 | .86 | .97 | 1.6 | .28 |
| 9 | .00 | .40 | .28 | .33 | .53 | 706 | 557 | 55 | .82 | 1.0 | 6.9 | .32 |
| 10 | .00 | .36 | .28 | .38 | .54 | 659 | 462 | 43 | .72 | 1.1 | 4.3 | .38 |
| 11 | .00 | .33 | .28 | .41 | .60 | 646 | 353 | 33 | .62 | 1.2 | 1.1 | .33 |
| 12 | .00 | .35 | .28 | .39 | .58 | 560 | 319 | 27 | .61 | 1.2 | .81 | .26 |
| 13 | .00 | .37 | .28 | .39 | .55 | 483 | 421 | 22 | .62 | 1.2 | .72 | .23 |
| 14 | .00 | .39 | .28 | .42 | .66 | 419 | 550 | 19 | .66 | 1.3 | .50 | .23 |
| 15 | .00 | .39 | .29 | .46 | .63 | 353 | 545 | 15 | .73 | 1.3 | .40 | .27 |
| 16 | .00 | .39 | .24 | .45 | 15 | 304 | 508 | 11 | .74 | 1.3 | .38 | .29 |
| 17 | .00 | .39 | .29 | .49 | 20 | 272 | 466 | 11 | .73 | 1.7 | .37 | .39 |
| 18 | .00 | .39 | .32 | .54 | 17 | 255 | 390 | 9.2 | .78 | 2.2 | .42 | .34 |
| 19 | .00 | .34 | .32 | .62 | 13 | 314 | 309 | 7.1 | .79 | 1.9 | .44 | .26 |
| 20 | .00 | .35 | .30 | .68 | 11 | 479 | 257 | 5.2 | .79 | 2.1 | .45 | .23 |
| 21 | .00 | .43 | .30 | .64 | 10 | 919 | 229 | 3.8 | .81 | 2.3 | .49 | .22 |
| 22 | .00 | .47 | .33 | .58 | 7.3 | 1080 | 215 | 2.4 | .80 | 2.0 | .51 | .24 |
| 23 | .00 | .48 | .35 | .57 | 5.4 | 2820 | 195 | 1.7 | .74 | 1.9 | .43 | .23 |
| 24 | .00 | .45 | .35 | .52 | 4.1 | 1810 | 160 | 1.3 | .70 | 1.9 | .35 | .23 |
| 25 | .00 | .44 | .33 | .49 | 3.8 | 1250 | 124 | 1.1 | .68 | 2.0 | .32 | .23 |
| 26 | .00 | .45 | .33 | .48 | 6.5 | 1090 | 108 | .97 | .71 | 2.1 | .29 | .22 |
| 27 | .00 | .46 | .39 | .45 | 18 | 969 | 97 | .86 | .76 | 2.3 | .23 | .20 |
| 28 | .00 | .45 | .44 | .45 | 46 | 970 | 91 | .87 | .78 | 2.1 | .22 | .13 |
| 29 | .13 | .39 | .50 | .49 | --- | 996 | 92 | .86 | .86 | 2.0 | .26 | .06 |
| 30 | .20 | .38 | .48 | .50 | --- | 925 | 75 | .94 | .90 | 1.9 | .28 | .01 |
| 31 | .18 | --- | .39 | .55 | --- | 976 | --- | .91 | --- | 1.8 | .27 | --- |
| TOTAL | 1.45 | 11.03 | 10.26 | 13.91 | 185.57 | 38864 | 13250 | 788.21 | 23.08 | 47.35 | 33.94 | 8.03 |
| MEAN | .047 | .37 | .33 | .45 | 6.63 | 1254 | 442 | 25.4 | .77 | 1.53 | 1.09 | .27 |
| MAX | .48 | .48 | .50 | .68 | 46 | 6150 | 1400 | 109 | .90 | 2.3 | 6.9 | .39 |
| MIN | .00 | .12 | .24 | .32 | .53 | 255 | 75 | .86 | .61 | .90 | .22 | .01 |
| AC-FT | 2.9 | 22 | 20 | 28 | 368 | 77090 | 26280 | 1560 | 46 | 94 | 67 | 16 |

CAL YR 1977 TOTAL 2243.18 MEAN 6.15 MAX 316 MIN .00 AC-FT 4450
WTR YR 1978 TOTAL 53236.83 MEAN 146 MAX 6150 MIN .00 AC-FT 105600

## 09401200 LITTLE COLORADO RIVER AT CAMERON, AZ
(National stream-quality accounting network and pesticide station)

LOCATION.--Lat 35°52'40", long 111°24'40", in NE¼SE¼ sec.22, T.29 N., R.9 E. (unsurveyed), Coconino County, Hydrologic Unit 15020016, at bridge on U.S. Highway 89 at Cameron, in Navajo Indian Reservation, 2.5 mi (4.0 km) upstream from Moenkopi Wash, 12 mi (19.3 km) upstream from gaging station 09402000 Little Colorado River near Cameron, and 57.5 mi (92.5 km) upstream from mouth.

DRAINAGE AREA.--24,000 $mi^2$ (62,000 $km^2$), approximately.

PERIOD OF RECORD.--October 1947 to September 1970, October 1974 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1964 to September 1970.
WATER TEMPERATURE: October 1951 to September 1970.
SUSPENDED-SEDIMENT DISCHARGE: October 1947 to September 1970.

REMARKS.--Streamflow ungaged. No flow for extended periods each year.

COOPERATION.--Pesticide analysis performed by Environmental Protection Agency.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) | STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 07... | 1400 | E20 | 550 | 8.5 | 21.0 | 6600 | 3100 | .22 | 0 | 7.7 | .7 | 130 |
| NOV | | | | | | | | | | | | |
| 21... | 1300 | E2.0 | 1380 | 8.2 | 7.5 | 3800 | -- | 88 | 0 | 27 | 4.9 | 290 |
| JAN | | | | | | | | | | | | |
| 05... | 1300 | .00 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | | | | | | | |
| 06... | 1200 | E80 | 880 | 8.5 | 6.0 | K400 | 5400 | 37 | 0 | 12 | 1.6 | 190 |
| MAR | | | | | | | | | | | | |
| 09... | 1530 | E1500 | 440 | 7.9 | 12.0 | 2400 | -- | 34 | 0 | 10 | 2.1 | 85 |
| APR | | | | | | | | | | | | |
| 05... | 1730 | E1100 | 260 | 8.3 | 17.0 | <1 | K150 | 39 | 0 | 12 | 2.3 | 42 |
| MAY | | | | | | | | | | | | |
| 05... | 1500 | E20 | 700 | 8.1 | 14.0 | K10 | 18000 | 110 | 31 | 32 | 6.4 | 100 |
| JUN | | | | | | | | | | | | |
| 06... | 1300 | .00 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | | | | |
| 05... | 1300 | .00 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | | | | |
| 17... | 1300 | .00 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| SEP | | | | | | | | | | | | |
| 05... | 1600 | .00 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

| DATE | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | BICAR-BONATE (MG/L AS HCO3) | CAR-BONATE (MG/L AS CO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER AC-FT) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 07... | 12 | 1.3 | 260 | 6 | 57 | 36 | 1.1 | 13 | 342 | 381 | .47 |
| NOV | | | | | | | | | | | |
| 21... | 13 | 3.0 | 300 | 0 | 210 | 180 | .9 | 9.6 | 870 | 874 | 1.18 |
| JAN | | | | | | | | | | | |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | | | | | | |
| 06... | 14 | 2.2 | 290 | 0 | 99 | 93 | .8 | 11 | 544 | 553 | .74 |
| MAR | | | | | | | | | | | |
| 09... | 6.4 | 1.7 | 130 | 0 | 44 | 54 | .5 | 6.7 | 295 | 268 | .40 |
| APR | | | | | | | | | | | |
| 05... | 2.9 | 1.7 | 77 | 0 | 20 | 29 | .2 | 5.9 | 147 | 151 | .20 |
| MAY | | | | | | | | | | | |
| 05... | 4.2 | 5.9 | 92 | 0 | 38 | 150 | .1 | 6.1 | 374 | 384 | .51 |
| JUN | | | | | | | | | | | |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | | | |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | | | |
| 17... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| SEP | | | | | | | | | | | |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

E Estimated.
K Based on non-ideal colony count.
< Actual value is known to be less than value shown.

09401200 LITTLE COLORADO RIVER AT CAMERSON, AZ

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN, AMMONIA TOTAL (MG/L AS N) | NITROGEN, ORGANIC TOTAL (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | NITROGEN, TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | PHOSPHORUS, DISSOLVED (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | ARSENIC DISSOLVED (UG/L AS AS) | BORON, TOTAL RECOVERABLE (UG/L AS B) | BORON, DISSOLVED (UG/L AS B) | CADMIUM TOTAL RECOVERABLE (UG/L AS CD) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 07... | .19 | .38 | -- | -- | -- | 13 | .14 | -- | -- | -- | -- | -- |
| NOV | | | | | | | | | | | | |
| 21... | -- | -- | -- | -- | -- | .13 | .14 | 340 | 3 | -- | -- | 15 |
| FEB | | | | | | | | | | | | |
| 06... | 1.5 | .00 | 17 | 17 | 19 | 17 | .12 | 55 | 6 | 100 | 350 | 0 |
| MAR | | | | | | | | | | | | |
| 09... | .24 | .34 | 2.8 | 3.1 | 3.3 | 5.1 | .05 | -- | -- | -- | -- | -- |
| APR | | | | | | | | | | | | |
| 05... | .12 | .01 | 4.2 | 4.2 | 4.3 | 3.9 | .05 | -- | -- | -- | -- | -- |
| MAY | | | | | | | | | | | | |
| 05... | .02 | .38 | .00 | .33 | .35 | .18 | .02 | 3 | 1 | -- | -- | 2 |

| DATE | CADMIUM DISSOLVED (UG/L AS CD) | CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) | CHROMIUM, DISSOLVED (UG/L AS CR) | COBALT, TOTAL RECOVERABLE (UG/L AS CO) | COBALT, DISSOLVED (UG/L AS CO) | COPPER, TOTAL RECOVERABLE (UG/L AS CU) | COPPER, DISSOLVED (UG/L AS CU) | IRON, TOTAL RECOVERABLE (UG/L AS FE) | IRON, DISSOLVED (UG/L AS FE) | LEAD, TOTAL RECOVERABLE (UG/L AS PB) | LEAD, DISSOLVED (UG/L AS PB) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 07... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | | | | | | |
| 21... | 0 | 280 | 4 | 150 | 0 | 330 | 10 | 270000 | 30 | 320 | 2 |
| FEB | | | | | | | | | | | |
| 06... | 0 | 10 | 0 | 3 | 1 | 19 | 6 | 1300 | 20 | 22 | 4 |
| MAR | | | | | | | | | | | |
| 09... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| APR | | | | | | | | | | | |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MAY | | | | | | | | | | | |
| 05... | 0 | 20 | 0 | 6 | 0 | 15 | 2 | 2800 | 10 | 12 | 2 |

| DATE | MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) | MANGANESE, DISSOLVED (UG/L AS MN) | MERCURY TOTAL RECOVERABLE (UG/L AS HG) | MERCURY DISSOLVED (UG/L AS HG) | SELENIUM, TOTAL (UG/L AS SE) | SELENIUM, DISSOLVED (UG/L AS SE) | ZINC, TOTAL RECOVERABLE (UG/L AS ZN) | ZINC, DISSOLVED (UG/L AS ZN) | CARBON, ORGANIC TOTAL (MG/L AS C) | CARBON, ORGANIC DISSOLVED (MG/L AS C) | CARBON, ORGANIC SUSPENDED TOTAL (MG/L AS C) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 07... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | | | | | | |
| 21... | 10000 | 0 | 1.0 | .0 | 4 | 4 | 1400 | 10 | -- | -- | -- |
| FEB | | | | | | | | | | | |
| 06... | 20 | 0 | 1.0 | .0 | 5 | 1 | 20 | 30 | -- | -- | -- |
| MAR | | | | | | | | | | | |
| 09... | -- | -- | -- | -- | -- | -- | -- | -- | 60 | -- | -- |
| APR | | | | | | | | | | | |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | 32 | -- | -- |
| MAY | | | | | | | | | | | |
| 05... | 90 | 10 | .0 | .0 | 0 | 0 | 40 | 10 | -- | 5.2 | 1.1 |

09401200 LITTLE COLORADO RIVER AT CAMERSON, AZ

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | ALDRIN, TOTAL (UG/L) | ATRA-ZINE, TOTAL (UG/L) | CHLOR-DANE, TOTAL (UG/L) | DDD, TOTAL (UG/L) | DDE, TOTAL (UG/L) | DDT, TOTAL (UG/L) | DI-AZINON, TOTAL (UG/L) | DI-ELDRIN TOTAL (UG/L) | ENDRIN, TOTAL (UG/L) | ETHION, TOTAL (UG/L) | HEPTA-CHLOR, TOTAL (UG/L) | HEPTA-CHLOR EPOXIDE TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV 21... | ND | -- | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| FEB 06... | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| MAY 05... | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |

| DATE | LINDANE TOTAL (UG/L) | MALA-THION, TOTAL (UG/L) | METH-OXY-CHLOR, TOTAL (UG/L) | METHYL PARA-THION, TOTAL (UG/L) | METHYL TRI-THION, TOTAL (UG/L) | SIMA-ZINE TOTAL COUL-SON COND. (UG/L) | TOX-APHENE, TOTAL (UG/L) | TOTAL TRI-THION (UG/L) | 2,4-D, TOTAL (UG/L) | 2,4,5-T TOTAL (UG/L) | SILVEX, TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV 21... | ND | ND | ND | ND | ND | -- | ND | ND | -- | -- | -- |
| FEB 06... | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| MAY 05... | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |

| DATE | TIME | TEMPER-ATURE (DEG C) | SEDI-MENT, SUS-PENDED (MG/L) | SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM | PHYTO-PLANK-TON, TOTAL (CELLS PER ML) |
|---|---|---|---|---|---|
| OCT 07... | 1400 | 21.0 | 32600 | 99 | 2600 |
| NOV 21... | 1300 | 7.5 | 38200 | 100 | 0 |
| FEB 06... | 1200 | 6.0 | 52400 | 99 | -- |
| MAR 09... | 1530 | 12.0 | 22500 | 57 | 57 |
| APR 05... | 1730 | 17.0 | 10100 | 66 | -- |
| MAY 05... | 1500 | 14.0 | 510 | 79 | 1700 |

ND Material specifically analyzed for but not detected.

09401200 LITTLE COLORADO RIVER AT CAMERSON, AZ

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

PHYTOPLANKTON

| DATE | OCT 7,77 | NOV 21,77 | MAR 9,78 | MAY 5,78 |
|---|---|---|---|---|
| TIME | 1400 | 1300 | 1530 | 1500 |
| TOTAL CELLS/ML | 2600 | 0 | 57 | 1700 |
| DIVERSITY: DIVISION | 0.9 | 0.0 | 0.0 | 0.0 |
| .CLASS | 0.9 | 0.0 | 0.0 | 0.0 |
| ..ORDER | 0.9 | 0.0 | 0.0 | 0.0 |
| ...FAMILY | 0.9 | 0.0 | 0.0 | 0.0 |
| ....GENUS | 0.9 | 0.0 | 0.0 | 0.0 |

| ORGANISM | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT |
|---|---|---|---|---|---|---|---|---|
| CHLOROPHYTA (GREEN ALGAE) | | | | | | | | |
| .CHLOROPHYCEAE | | | | | | | | |
| ..CHLOROCOCCALES | | | | | | | | |
| ...OOCYSTACEAE | | | | | | | | |
| ....ANKISTRODESMUS | 1700# | 67 | -- | - | -- | - | -- | - |
| CHRYSOPHYTA | | | | | | | | |
| .BACILLARIOPHYCEAE | | | | | | | | |
| ..PENNALES | | | | | | | | |
| ...NAVICULACEAE | | | | | | | | |
| ....NAVICULA | 870# | 33 | -- | - | -- | - | -- | - |
| ...NITZSCHIACEAE | | | | | | | | |
| ....NITZSCHIA | -- | - | -- | - | -- | - | 1700# | 100 |
| EUGLENOPHYTA (EUGLENOIDS) | | | | | | | | |
| .EUGLENOPHYCEAE | | | | | | | | |
| ..EUGLENALES | | | | | | | | |
| ...EUGLENACEAE | | | | | | | | |
| ....TRACHELOMONAS | -- | - | -- | - | 57# | 100 | -- | - |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

## 09401226 COAL MINE WASH TRIBUTARY NO. 1 NEAR KAYENTA, AZ

LOCATION.--Lat 36°31'54", long 110°24'02", Navajo County, Hydrologic Unit 15020018, in Navajo Indian Reservation, on left bank, 0.25 mi (0.40 km) upstream from Coal Mine Wash and 16 mi (26 km) southwest of Kayenta.

DRAINAGE AREA.--0.62 $mi^2$ (1.61 $km^2$), approximately.

PERIOD OF RECORD.--October 1977 to September 1978, October 1976 to September 1977 (annual maximum only), December 1973 to September 1975, records not equivalent because of control installation.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 6,560 ft (1,999 m), from topographic map. December 1973 to September 1975, recording gage and supplementary crest-stage gage located 30 ft (9.14 m) downstream at different datum.

REMARKS.--Records fair.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 772 $ft^3/s$ (21.9 $m^3/s$) July 10, 1975 (from slope-area measurement), gage height, 8.5 ft (2.6 m), approximately (flow went around ends of control). No flow for most of each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 0.15 $ft^3/s$ (0.004 $m^3/s$) July 24, gage height, 1.11 ft (0.338 m), no peak above base of 5.0 $ft^3/s$ (0.14 $m^3/s$). No flow for most of year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 2 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 3 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 4 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 5 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 6 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 7 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 9 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 10 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 11 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 12 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 13 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 14 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 15 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 16 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 17 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 18 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 19 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 20 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 21 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 22 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 23 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 24 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .003 | .00 | .00 |
| 25 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 26 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 27 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .0004 | .00 | .00 |
| 28 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 29 | .00 | .00 | .00 | .00 | --- | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 30 | .00 | .00 | .00 | .00 | --- | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 31 | .00 | --- | .00 | .00 | --- | .00 | --- | .00 | --- | .00 | .00 | --- |
| TOTAL | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .0034 | .00 | .00 |
| MEAN | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .00011 | .000 | .000 |
| MAX | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .003 | .00 | .00 |
| MIN | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .0000 | .00 | .00 |
| AC-FT | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .007 | .00 | .00 |

WTR YR 1978 TOTAL 0.0034 MEAN .000009 MAX .003 MIN .00 AC-FT .007

## 09401229 COAL MINE WASH TRIBUTARY NO. 2 NEAR KAYENTA, AZ

LOCATION.--Lat 36°32'13", long 110°24'28", Navajo County, Hydrologic Unit 15020018, in Navajo Indian Reservation, on right bank, 0.25 mi (0.40 km) upstream from mouth, and 20 mi (32 km) southwest of Kayenta.

DRAINAGE AREA.--0.06 $mi^2$ (0.16 $km^2$), approximately. Prior to July 1975, 0.62 $mi^2$ (1.61 $km^2$).

PERIOD OF RECORD.--October 1977 to September 1978, October 1975 to September 1977 (annual maximum only, records published in Progress Report on Black Mesa Monitoring Program, 1977, U.S. Geological Survey open-file report 78-459). December 1973 to March 1975, records not equivalent because control was not installed.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 6,510 ft (1,984 m), from topographic map. December 1973 to March 1975, recording gage and supplementary crest-stage gage at same site at different datum.

REMARKS.--Records fair.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15 $ft^3/s$ (0.425 $m^3/s$) July 16, 1974, gage height, 0.46 ft (0.140 m), datum then in use; no flow for most of each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 0.10 $ft^3/s$ (0.003 $m^3/s$) Mar. 1, gage height, 1.08 ft (0.329 m), no peak above base of 1.0 $ft^3/s$ (0.028 $m^3/s$); no flow for most of year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .00 | .00 | .00 | .00 | .00 | .01 | .00 | .00 | .00 | .00 | .00 | .00 |
| 2 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 3 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 4 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 5 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 6 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 7 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 9 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 10 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 11 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 12 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 13 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 14 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 15 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 16 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 17 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 18 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 19 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 20 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 21 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 22 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 23 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 24 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 25 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 26 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 27 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 28 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 29 | .00 | .00 | .00 | .00 | --- | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 30 | .00 | .00 | .00 | .00 | --- | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 31 | .00 | --- | .00 | .00 | --- | .00 | --- | .00 | --- | .00 | .00 | --- |
| TOTAL | .00 | .00 | .00 | .00 | .00 | .01 | .00 | .00 | .00 | .00 | .00 | .00 |
| MEAN | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| MAX | .00 | .00 | .00 | .00 | .00 | .01 | .00 | .00 | .00 | .00 | .00 | .00 |
| MIN | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| AC-FT | .00 | .00 | .00 | .00 | .00 | .02 | .00 | .00 | .00 | .00 | .00 | .00 |

WTR YR 1978 TOTAL 0.01 MEAN .000 MAX .01 MIN .00 AC-FT .02

## 09401260 MOENKOPI WASH AT MOENKOPI, AZ

LOCATION.--Lat 36°06'18", long 111°12'04", in NW¼NE¼ sec.3, T.31 N., R.11 E. (unsurveyed), Coconino County, Hydrologic Unit 15020018, in Navajo Indian Reservation on left bank 100 ft (30 m) upstream from bridge on State Highway 264, 1.3 mi (2.1 km) southeast of Moenkopi, 2.5 mi (4.0 km) downstream from former gaging station 09401250, and 12.5 mi (20.1 km) downstream from Begashibito Wash.

DRAINAGE AREA.--1,660 $mi^2$ (4,300 $km^2$), approximately.

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1976 to current year. Records for October 1973 to July 1976 at site 2.5 mi (4.0 km) upstream, not equivalent below 1.5 $ft^3/s$ (0.042 $m^3/s$) due to channel losses.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 4,610 ft (1,405 m), from topographic map.

REMARKS.--Records poor.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,420 $ft^3/s$ (153 $m^3/s$) Sept. 25, 1976, gage height, 9.9 ft (3.02 m), from profile of floodmarks past gage, from rating curve extended above 140 $ft^3/s$ (3.96 $m^3/s$) on basis of slope-area measurement of peak flow. No flow at times each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--A discharge of 15,100 $ft^3/s$ (428 $m^3/s$) occurred Aug. 4, 1929, at former gaging station site 3.5 mi (5.6 km) downstream.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 262 $ft^3/s$ (7.420 $m^3/s$) Sept. 25, gage height, 5.03 ft (1.533 m), no peak above base of 1,200 $ft^3/s$ (34 $m^3/s$); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .70 | 1.5 | 2.4 | 2.8 | 4.4 | 20 | 1.8 | 1.3 | .50 | .00 | .00 | .00 |
| 2 | .70 | 1.5 | 2.4 | 2.8 | 3.8 | 27 | 1.8 | 1.3 | .50 | .00 | .00 | .00 |
| 3 | .50 | 1.5 | 2.4 | 2.8 | 3.8 | 13 | 1.8 | 1.1 | .40 | .00 | .00 | .00 |
| 4 | .50 | 2.1 | 2.4 | 2.8 | 3.6 | 9.0 | 1.8 | 1.1 | .50 | .00 | .00 | .00 |
| 5 | .50 | 2.1 | 2.4 | 2.8 | 7.2 | 13 | 1.8 | 1.1 | .50 | .00 | .00 | .00 |
| 6 | .70 | 2.1 | 2.4 | 2.8 | 4.0 | 15 | 1.1 | 1.1 | .50 | .00 | .00 | .00 |
| 7 | 1.5 | 2.8 | 2.4 | 2.8 | 4.9 | 6.0 | 1.1 | 1.1 | .60 | .00 | .00 | .00 |
| 8 | .70 | 4.9 | 2.4 | 2.8 | 7.2 | 4.0 | 1.1 | 1.1 | .50 | .00 | .00 | .00 |
| 9 | 1.1 | 3.2 | 1.8 | 2.8 | 4.0 | 4.0 | 1.1 | 1.1 | .50 | .00 | .00 | .00 |
| 10 | 1.1 | 2.4 | 1.8 | 3.2 | 4.0 | 1.8 | 1.1 | .70 | .50 | .00 | .00 | .00 |
| 11 | 1.1 | 2.4 | 1.8 | 3.6 | 4.0 | 1.8 | 1.1 | .80 | .20 | .00 | .00 | .00 |
| 12 | 1.1 | 2.4 | 1.8 | 3.6 | 4.9 | 4.0 | 1.8 | .70 | .00 | .00 | .00 | .00 |
| 13 | 1.1 | 2.4 | 2.4 | 3.2 | 4.0 | 1.8 | 1.8 | .60 | .00 | .00 | .00 | .00 |
| 14 | 1.1 | 2.4 | 2.4 | 2.8 | 4.0 | 6.0 | 1.8 | .50 | .00 | .00 | .00 | .00 |
| 15 | 1.1 | 2.4 | 2.4 | 2.8 | 4.0 | 1.8 | 1.8 | .50 | .00 | .00 | .00 | .00 |
| 16 | .70 | 2.4 | 2.4 | 3.2 | 4.0 | 1.8 | 1.8 | .40 | .00 | .00 | .00 | .00 |
| 17 | .70 | 2.4 | 2.4 | 4.9 | 4.0 | 1.8 | 1.8 | .60 | .00 | .00 | .00 | .00 |
| 18 | 1.1 | 2.4 | 2.4 | 5.4 | 3.2 | 1.8 | 1.8 | .60 | .00 | .00 | .00 | .00 |
| 19 | 1.1 | 2.4 | 2.4 | 5.4 | 4.0 | 1.8 | 1.8 | .70 | .00 | 3.3 | .00 | .00 |
| 20 | .70 | 2.4 | 2.4 | 5.4 | 4.4 | 1.8 | 2.8 | .70 | .00 | .90 | .00 | .00 |
| 21 | .70 | 1.8 | 2.4 | 4.4 | 4.4 | 1.8 | 2.8 | .60 | .00 | .30 | .00 | .00 |
| 22 | 1.1 | 1.5 | 2.4 | 4.4 | 4.0 | 1.8 | 2.8 | .50 | .00 | .00 | .00 | .00 |
| 23 | 1.5 | 1.5 | 2.4 | 4.4 | 4.0 | 1.8 | 2.8 | .50 | .00 | .00 | .00 | .00 |
| 24 | 1.5 | 1.5 | 2.4 | 3.6 | 4.0 | 1.8 | 2.8 | .50 | .00 | .00 | .00 | .30 |
| 25 | 1.5 | 1.5 | 2.4 | 3.6 | 4.0 | 1.8 | 2.8 | .40 | .00 | .00 | .00 | 91 |
| 26 | 1.5 | 1.5 | 2.8 | 4.4 | 4.0 | 1.8 | 2.8 | .50 | .00 | 7.2 | .00 | 15 |
| 27 | 1.5 | 1.5 | 2.8 | 5.4 | 4.0 | 1.8 | 2.8 | .50 | .00 | 3.8 | .00 | 4.0 |
| 28 | 1.5 | 1.5 | 3.6 | 4.4 | 5.4 | 1.8 | 1.8 | .50 | .00 | 1.8 | .00 | .70 |
| 29 | 1.5 | 2.1 | 4.4 | 4.4 | --- | 1.8 | 1.5 | .50 | .00 | 1.1 | .00 | .50 |
| 30 | 1.5 | 2.4 | 3.6 | 3.6 | --- | 1.8 | 1.5 | .50 | .00 | .20 | .00 | .20 |
| 31 | 1.5 | --- | 2.8 | 5.4 | --- | 1.8 | --- | .50 | --- | .00 | .00 | --- |
| TOTAL | 33.10 | 64.9 | 77.6 | 116.7 | 120.8 | 157.0 | 57.2 | 22.80 | 5.20 | 18.60 | .00 | 111.70 |
| MEAN | 1.07 | 2.16 | 2.50 | 3.76 | 4.31 | 5.06 | 1.91 | .73 | .17 | .60 | .000 | 3.72 |
| MAX | 1.5 | 4.9 | 4.4 | 5.4 | 7.2 | 27 | 2.8 | 1.3 | .60 | 7.2 | .00 | 91 |
| MIN | .50 | 1.5 | 1.8 | 2.8 | 3.2 | 1.8 | 1.1 | .40 | .00 | .00 | .00 | .00 |
| AC-FT | 66 | 129 | 154 | 231 | 240 | 311 | 113 | 45 | 10 | 37 | .00 | 222 |

CAL YR 1977 TOTAL 5513.70 MEAN 15.1 MAX 1900 MIN .00 AC-FT 10940
WTR YR 1978 TOTAL 785.40 MEAN 2.15 MAX 91 MIN .00 AC-FT 1560

NOTE.--No gage-height record Oct. 14 to Nov. 21, Nov. 29 to Feb. 17, Mar. 3 to Apr. 3.

09401260 MOENKOPI WASH AT MOENKOPI, AZ--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1973 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1973 to current year.
WATER TEMPERATURES: October 1973 to current year.
SUSPENDED SEDIMENT DISCHARGE: October 1973 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum observed, 4,070 micromhos July 14, 1975; minimum observed, 564 micromhos Dec. 28, 1976.
WATER TEMPERATURES: Maximum observed, 33.0°C July 9, Aug. 22, 1975, July 30, 1976; minimum observed, 0.0°C on many days during winter months.
SEDIMENT CONCENTRATIONS: Maximum daily, 262,000 mg/L Sept. 25, 1976; minimum daily, no flow on many days.
SEDIMENT LOADS: Maximum daily, 1,600,000 tons (1,450,000 tonnes) Sept. 25, 1976; minimum daily, 0 ton (0 tonne) on many days.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum observed, 3,080 micromhos Oct. 29; minimum observed, 702 micromhos Feb. 20.
WATER TEMPERATURES: Maximum observed, 29.0°C May 19; minimum observed, 1.0°C Nov. 9.
SEDIMENT CONCENTRATIONS: Maximum daily, 114,000 mg/L Sept. 25; minimum daily, no flow on many days.
SEDIMENT LOADS: Maximum daily, 34,700 tons (31,500 tonnes) Sept. 25; minimum daily, 0 ton (0 tonne) on many days.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) |
|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | |
| 21... | 1615 | 2.4 | 1000 | 8.2 | 8.0 | 290 | 85 | 83 |
| JAN | | | | | | | | |
| 04... | 1715 | 2.7 | 920 | 8.4 | 7.5 | 240 | 55 | 65 |
| FEB | | | | | | | | |
| 17... | 1340 | 3.5 | 900 | 8.1 | 4.0 | 250 | 77 | 70 |
| JUL | | | | | | | | |
| 19... | 1215 | 2.8 | 1400 | 8.5 | 27.0 | 230 | 15 | 47 |
| SEP | | | | | | | | |
| 25... | 1630 | 75 | 2700 | 7.2 | 19.0 | 1300 | 1100 | 380 |

| DATE | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | BICAR-BONATE (MG/L AS HCO3) | CAR-BONATE (MG/L AS CO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) |
|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | |
| 21... | 20 | 120 | 3.1 | 5.8 | 250 | 0 | 310 | 15 | .5 |
| JAN | | | | | | | | | |
| 04... | 19 | 110 | 3.1 | 4.2 | 210 | 8 | 290 | 15 | .6 |
| FEB | | | | | | | | | |
| 17... | 18 | 100 | 2.8 | 3.6 | 210 | 0 | 260 | 13 | .5 |
| JUL | | | | | | | | | |
| 19... | 27 | 260 | 7.5 | 7.7 | 260 | 0 | 510 | 20 | .6 |
| SEP | | | | | | | | | |
| 25... | 97 | 220 | 2.6 | 14 | 360 | 0 | 1500 | 22 | .5 |

| DATE | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER AC-FT) | NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) | PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) | BORON, DIS-SOLVED (UG/L AS B) | IRON, DIS-SOLVED (UG/L AS FE) |
|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | |
| 21... | 10 | 678 | 689 | .92 | .30 | .00 | 0 | 60 |
| JAN | | | | | | | | |
| 04... | 7.8 | 652 | 624 | .89 | .16 | .00 | 80 | 10 |
| FEB | | | | | | | | |
| 17... | 7.2 | 573 | 577 | .78 | .15 | .00 | 80 | 20 |
| JUL | | | | | | | | |
| 19... | 11 | 984 | 1020 | 1.34 | 2.1 | .01 | 150 | 680 |
| SEP | | | | | | | | |
| 25... | 11 | 2630 | 2430 | 3.58 | 1.7 | .06 | 190 | 40 |

09401260 MOENKOPI WASH AT MOENKOPI, AZ--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1260 | 856 | 834 | 912 | 854 | 1030 | 959 | 1210 | 1050 | --- | | --- |
| 2 | 1200 | 873 | 837 | 925 | 859 | --- | 916 | 966 | 1060 | --- | | --- |
| 3 | 1070 | 862 | 791 | 926 | 851 | 1490 | 933 | 964 | 1110 | --- | | --- |
| 4 | 1130 | 832 | 788 | 901 | 836 | 1510 | 932 | 938 | 1200 | --- | | --- |
| 5 | 1060 | 846 | 812 | 873 | 821 | 1520 | 916 | 961 | 1200 | --- | | --- |
| 6 | 1130 | 1150 | 815 | 869 | 818 | 1170 | 870 | 878 | 1200 | --- | | --- |
| 7 | 1110 | 1160 | 829 | 856 | 826 | 1280 | 903 | 868 | 1280 | --- | | --- |
| 8 | 1130 | 1160 | 825 | 867 | 848 | 1540 | 909 | 862 | 1500 | --- | | --- |
| 9 | 1170 | 1380 | 840 | 853 | 826 | 1230 | 919 | 862 | 1380 | --- | | --- |
| 10 | 1140 | 1400 | 868 | 864 | 854 | 1220 | 898 | 865 | 1380 | --- | | --- |
| 11 | 1130 | 1220 | 862 | 876 | 847 | 1090 | 902 | 883 | --- | --- | | --- |
| 12 | 1020 | 894 | 833 | 897 | 859 | 911 | 860 | 863 | --- | --- | | --- |
| 13 | 955 | 870 | 822 | 847 | 963 | 883 | 901 | 903 | --- | --- | | --- |
| 14 | 2970 | 860 | 815 | 861 | 832 | 858 | 890 | 908 | --- | --- | | --- |
| 15 | 1000 | 838 | 896 | 856 | 847 | 1400 | 887 | 879 | --- | --- | | --- |
| 16 | 926 | 834 | 891 | 888 | 841 | 1410 | 919 | 930 | --- | --- | | --- |
| 17 | 900 | 880 | 971 | 888 | 836 | 883 | 929 | 1030 | --- | --- | | --- |
| 18 | 918 | 875 | 931 | 909 | 853 | 861 | 840 | 1020 | --- | --- | | --- |
| 19 | 896 | 908 | 937 | 873 | 868 | 857 | 847 | 999 | --- | 1600 | | --- |
| 20 | 893 | 916 | 951 | 943 | 702 | 841 | 840 | 935 | --- | 1450 | | --- |
| 21 | 887 | 925 | 809 | 933 | 782 | --- | 938 | 926 | --- | --- | | --- |
| 22 | 900 | 853 | 809 | 910 | 771 | 856 | 951 | 920 | --- | --- | | --- |
| 23 | 889 | 842 | 809 | 922 | 775 | 845 | 895 | 923 | --- | --- | | --- |
| 24 | 881 | 859 | 803 | 897 | 781 | 916 | 850 | 1090 | --- | --- | | --- |
| 25 | 872 | 834 | 798 | 892 | 804 | 917 | 876 | 1240 | --- | --- | | 1820 |
| 26 | 869 | 835 | 780 | 872 | 788 | 871 | 862 | 1250 | --- | 2090 | | 2500 |
| 27 | 848 | 816 | 781 | 894 | 843 | 830 | 899 | 1150 | --- | 1800 | | 2200 |
| 28 | 839 | 815 | 785 | 797 | 847 | 847 | 903 | 1150 | --- | 1810 | | 2080 |
| 29 | 3080 | 824 | 909 | 789 | --- | 840 | 889 | 1040 | --- | 1740 | | 1930 |
| 30 | 1000 | 822 | 923 | 805 | --- | 837 | 865 | 1050 | --- | 1800 | | 1750 |
| 31 | 883 | --- | 955 | 840 | --- | 973 | --- | 1040 | --- | --- | | --- |
| MAX | 3080 | 1400 | 971 | 943 | 963 | 1540 | 959 | 1250 | 1500 | 2090 | | 2500 |
| MIN | 839 | 815 | 780 | 789 | 702 | 830 | 840 | 862 | 1050 | 1450 | | 1750 |

WTR YR 1978 MAX 3080 MIN 702

09401260 MOENKOPI WASH AT MOENKOPI, AZ--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 11.0 | 13.0 | 6.0 | 7.0 | 6.0 | 10.0 | 6.0 | 13.0 | 26.0 | --- | | --- |
| 2 | 11.0 | 10.0 | 2.0 | 5.0 | 4.0 | 10.0 | 15.0 | 20.0 | 23.0 | --- | | --- |
| 3 | 14.0 | 5.0 | 2.0 | 5.0 | 5.0 | 10.0 | 16.0 | 24.0 | 16.0 | --- | | --- |
| 4 | 23.0 | 10.0 | 4.0 | 7.0 | 6.0 | 8.0 | 17.0 | 20.0 | 18.0 | --- | | --- |
| 5 | 23.0 | 11.0 | 5.0 | 9.0 | 6.0 | 10.0 | 19.0 | 13.0 | 22.0 | --- | | --- |
| 6 | 20.0 | 8.0 | 2.0 | 6.0 | 8.0 | 14.0 | 23.0 | 14.0 | 15.0 | --- | | --- |
| 7 | 21.0 | 4.0 | 2.0 | 6.0 | 11.0 | 16.0 | 15.0 | 17.0 | 16.0 | --- | | --- |
| 8 | 21.0 | 6.0 | 5.0 | 5.0 | 12.0 | 16.0 | 16.0 | 25.0 | 18.0 | --- | | --- |
| 9 | 21.0 | 1.0 | 4.0 | 6.0 | 7.0 | 15.0 | 14.0 | 25.0 | 18.0 | --- | | --- |
| 10 | 11.0 | 2.0 | 2.0 | 7.0 | 9.0 | 11.0 | 22.0 | 25.0 | 25.0 | --- | | --- |
| 11 | 10.0 | 4.0 | 2.0 | 5.0 | 8.0 | 10.0 | 24.0 | 25.0 | --- | --- | | --- |
| 12 | 9.0 | 12.0 | 2.0 | 7.0 | 7.0 | 15.0 | 26.0 | 26.0 | --- | --- | | --- |
| 13 | 8.0 | 3.0 | 6.0 | 6.0 | 5.0 | 4.0 | 21.0 | 28.0 | --- | --- | | --- |
| 14 | 8.0 | 10.0 | 7.0 | 4.0 | 8.0 | 4.0 | 20.0 | 25.0 | --- | --- | | --- |
| 15 | 9.0 | 10.0 | 6.0 | 6.0 | 9.0 | 6.0 | 18.0 | 26.0 | --- | --- | | --- |
| 16 | 19.0 | 10.0 | 5.0 | 5.0 | 5.0 | 7.0 | 12.0 | 25.0 | --- | --- | | --- |
| 17 | 20.0 | 2.0 | 4.0 | 8.0 | 6.0 | 20.0 | 21.0 | 26.0 | --- | --- | | --- |
| 18 | 20.0 | 10.0 | 4.0 | 6.0 | 5.0 | 20.0 | 24.0 | 26.0 | --- | --- | | --- |
| 19 | 19.0 | 6.0 | 2.0 | 5.0 | 8.0 | 18.0 | 21.0 | 29.0 | --- | 27.0 | | --- |
| 20 | 18.0 | 8.0 | 3.0 | 8.0 | 10.0 | 18.0 | 20.0 | 28.0 | --- | 18.0 | | --- |
| 21 | 18.0 | 8.0 | 5.0 | 8.0 | 12.0 | 20.0 | 21.0 | 21.0 | --- | --- | | --- |
| 22 | 16.0 | 5.0 | 4.0 | 5.0 | 14.0 | 20.0 | 11.0 | 24.0 | --- | --- | | --- |
| 23 | 12.0 | 6.0 | 5.0 | 5.0 | 12.0 | 22.0 | 24.0 | 21.0 | --- | --- | | --- |
| 24 | 17.0 | 8.0 | 2.0 | 4.0 | 14.0 | 18.0 | 23.0 | 18.0 | --- | --- | | --- |
| 25 | 8.0 | 10.0 | 5.0 | 4.0 | 13.0 | 22.0 | 21.0 | 22.0 | --- | --- | | 18.0 |
| 26 | 18.0 | 10.0 | 4.0 | 4.0 | 12.0 | 25.0 | 23.0 | 26.0 | --- | 28.0 | | 15.0 |
| 27 | 18.0 | 5.0 | 5.0 | 5.0 | 10.0 | 18.0 | 22.0 | 26.0 | --- | 21.0 | | 26.0 |
| 28 | 10.0 | 4.0 | 6.0 | 6.0 | 9.0 | 25.0 | 25.0 | 27.0 | --- | 21.0 | | 27.0 |
| 29 | 20.0 | 7.0 | 7.0 | 8.0 | --- | 23.0 | 22.0 | 26.0 | --- | 26.0 | | 6.0 |
| 30 | 16.0 | 7.0 | 8.0 | 7.0 | --- | 21.0 | 21.0 | 27.0 | --- | 23.0 | | 10.0 |
| 31 | 12.0 | --- | 8.0 | 8.0 | --- | 22.0 | --- | 28.0 | --- | --- | | --- |
| MAX | 23.0 | 13.0 | 8.0 | 9.0 | 14.0 | 25.0 | 26.0 | 29.0 | 26.0 | 28.0 | | 27.0 |
| MIN | 8.0 | 1.0 | 2.0 | 4.0 | 4.0 | 4.0 | 6.0 | 13.0 | 15.0 | 18.0 | | 6.0 |

WTR YR 1978 MAX 29.0 MIN 1.0

09401260 MOENKOPI WASH AT MOENKOPI, AZ--Continued

SUSPENDED-SEDIMENT CONCENTRATION (MG/L), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 87 | 214 | 364 | 284 | 181 | 30700 | 238 | 180 | 110 | --- | | --- |
| 2 | 82 | 190 | 352 | 249 | 386 | 52600 | 568 | 196 | 163 | --- | | --- |
| 3 | 75 | 204 | 360 | 233 | 178 | 19200 | 556 | 228 | 101 | --- | | --- |
| 4 | 48 | 256 | 329 | 286 | 429 | 3600 | 618 | 129 | 85 | --- | | --- |
| 5 | 78 | 267 | 308 | 246 | 144 | 8360 | 317 | 104 | 92 | --- | | --- |
| 6 | 96 | 1350 | 412 | 247 | 166 | 11300 | 326 | 111 | 102 | --- | | --- |
| 7 | 123 | 1360 | 340 | 200 | 205 | 9320 | 284 | 119 | 90 | --- | | --- |
| 8 | 142 | 1330 | 304 | 200 | 167 | 2770 | 237 | 120 | 94 | --- | | --- |
| 9 | 54 | 511 | 312 | 378 | 157 | 483 | 263 | 102 | 104 | --- | | --- |
| 10 | 50 | 506 | 416 | 365 | 192 | 359 | 162 | 87 | 121 | --- | | --- |
| 11 | 62 | 454 | 354 | 326 | 395 | 466 | 154 | 139 | --- | --- | | --- |
| 12 | 80 | 346 | 385 | 320 | 391 | 379 | 144 | 109 | --- | --- | | --- |
| 13 | 77 | 339 | 347 | 227 | 296 | 389 | 211 | 90 | --- | --- | | --- |
| 14 | 96 | 340 | 364 | 214 | 206 | 563 | 129 | 92 | --- | --- | | --- |
| 15 | 114 | 322 | 444 | 217 | 212 | 365 | 154 | 98 | --- | --- | | --- |
| 16 | 120 | 228 | 442 | 393 | 238 | 211 | 110 | 90 | --- | --- | | --- |
| 17 | 96 | 356 | 155 | 358 | 300 | 634 | 112 | 96 | --- | --- | | --- |
| 18 | 107 | 351 | 160 | 235 | 199 | 190 | 116 | 78 | --- | --- | | --- |
| 19 | 71 | 378 | 206 | 234 | 141 | 248 | 139 | 87 | --- | 27700 | | --- |
| 20 | 120 | 353 | 164 | 240 | 233 | 223 | 153 | 100 | --- | 2400 | | --- |
| 21 | 114 | 302 | 291 | 461 | 262 | 173 | 164 | 84 | --- | 300 | | --- |
| 22 | 144 | 309 | 312 | 324 | 152 | 695 | 126 | 78 | --- | --- | | --- |
| 23 | 77 | 303 | 298 | 218 | 220 | 241 | 101 | 90 | --- | --- | | --- |
| 24 | 125 | 320 | 294 | 224 | 191 | 220 | 108 | 142 | --- | --- | | 500 |
| 25 | 151 | 266 | 534 | 252 | 222 | 193 | 168 | 94 | --- | 50500 | | 114000 |
| 26 | 140 | 251 | 407 | 285 | 202 | 243 | 134 | 77 | --- | 50500 | | 46200 |
| 27 | 156 | 295 | 520 | 306 | 408 | 220 | 100 | 113 | --- | 57000 | | 10300 |
| 28 | 162 | 282 | 318 | 300 | 366 | 196 | 90 | 101 | --- | 4210 | | 3000 |
| 29 | 103 | 286 | 352 | 300 | --- | 186 | 107 | 196 | --- | 296 | | 345 |
| 30 | 232 | 295 | 439 | 274 | --- | 176 | 98 | 155 | --- | 22 | | 252 |
| 31 | 204 | --- | 331 | 317 | --- | 231 | --- | 105 | --- | --- | | --- |

SUSPENDED-SEDIMENT DISCHARGE (TONS/DAY), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
SUMMATION VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .16 | .87 | 2.4 | 2.2 | 2.2 | 3060 | 1.2 | .63 | .15 | .00 | .00 | .00 |
| 2 | .15 | .77 | 2.3 | 1.9 | 3.8 | 4020 | 2.8 | .69 | .22 | .00 | .00 | .00 |
| 3 | .10 | .83 | 2.3 | 1.8 | 1.7 | 654 | 2.7 | .68 | .11 | .00 | .00 | .00 |
| 4 | .06 | 1.5 | 2.1 | 2.2 | 4.2 | 87 | 3.0 | .38 | .11 | .00 | .00 | .00 |
| 5 | .11 | 1.5 | 2.0 | 1.9 | 2.8 | 284 | 1.5 | .31 | .12 | .00 | .00 | .00 |
| 6 | .18 | 7.7 | 2.7 | 1.9 | 1.8 | 465 | .97 | .33 | .14 | .00 | .00 | .00 |
| 7 | .50 | 10 | 2.2 | 1.5 | 2.7 | 151 | .84 | .35 | .15 | .00 | .00 | .00 |
| 8 | .27 | 18 | 2.0 | 1.5 | 3.2 | 30 | .70 | .36 | .13 | .00 | .00 | .00 |
| 9 | .16 | 4.4 | 1.5 | 2.9 | 1.7 | 5.2 | .78 | .30 | .14 | .00 | .00 | .00 |
| 10 | .15 | 3.3 | 2.0 | 3.2 | 2.1 | 1.7 | .48 | .16 | .16 | .00 | .00 | .00 |
| 11 | .18 | 2.9 | 1.7 | 3.2 | 4.3 | 2.3 | .45 | .30 | .10 | .00 | .00 | .00 |
| 12 | .24 | 2.2 | 1.9 | 3.1 | 5.2 | 4.1 | .70 | .21 | .00 | .00 | .00 | .00 |
| 13 | .23 | 2.2 | 2.2 | 2.0 | 3.2 | 1.9 | 1.0 | .15 | .00 | .00 | .00 | .00 |
| 14 | .30 | 2.2 | 2.4 | 1.6 | 2.2 | 9.1 | .63 | .12 | .00 | .00 | .00 | .00 |
| 15 | .34 | 2.1 | 2.9 | 1.6 | 2.3 | 1.8 | .75 | .13 | .00 | .00 | .00 | .00 |
| 16 | .23 | 1.5 | 2.9 | 3.4 | 2.6 | 1.0 | .53 | .10 | .00 | .00 | .00 | .00 |
| 17 | .18 | 2.3 | 1.0 | 4.7 | 3.2 | 3.1 | .54 | .16 | .00 | .00 | .00 | .00 |
| 18 | .32 | 2.3 | 1.0 | 3.4 | 1.7 | .92 | .56 | .13 | .00 | .00 | .00 | .00 |
| 19 | .21 | 2.4 | 1.3 | 3.4 | 1.5 | 1.2 | .68 | .16 | .00 | 335 | .00 | .00 |
| 20 | .23 | 2.3 | 1.1 | 3.5 | 2.8 | 1.1 | 1.2 | .19 | .00 | 7.7 | .00 | .00 |
| 21 | .22 | 1.5 | 1.9 | 5.5 | 3.1 | .84 | 1.2 | .14 | .00 | .24 | .00 | .00 |
| 22 | .43 | 1.3 | 2.0 | 3.8 | 1.6 | 3.4 | .95 | .11 | .00 | .00 | .00 | .00 |
| 23 | .31 | 1.2 | 1.9 | 2.6 | 2.4 | 1.2 | .76 | .12 | .00 | .00 | .00 | .00 |
| 24 | .51 | 1.3 | 1.9 | 2.2 | 2.1 | 1.1 | .82 | .19 | .00 | .00 | .00 | 1.8 |
| 25 | .61 | 1.1 | 3.5 | 2.4 | 2.4 | .94 | 1.3 | .10 | .00 | .00 | .00 | 34700 |
| 26 | .57 | 1.0 | 3.1 | 3.4 | 2.2 | 1.2 | 1.0 | .10 | .00 | 2180 | .00 | 2050 |
| 27 | .63 | 1.2 | 3.9 | 4.5 | 4.4 | 1.1 | .76 | .15 | .00 | 641 | .00 | 138 |
| 28 | .66 | 1.1 | 3.1 | 3.6 | 5.3 | .95 | .44 | .14 | .00 | 20 | .00 | 5.7 |
| 29 | .42 | 1.6 | 4.2 | 3.6 | --- | .90 | .43 | .26 | .00 | .88 | .00 | .47 |
| 30 | .94 | 1.9 | 4.3 | 2.7 | --- | .86 | .40 | .21 | .00 | .02 | .00 | .14 |
| 31 | .83 | --- | 2.5 | 4.6 | --- | 1.1 | --- | .14 | --- | .00 | .00 | --- |
| TOTAL | 10.43 | 84.47 | 72.2 | 89.8 | 78.7 | 8798.01 | 30.07 | 7.50 | 1.53 | 3184.84 | 0.00 | 36896.11 |

WTR YR 1978 TOTAL 49253.66

09401260 MOENKOPI WASH AT MOENKOPI, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | TEMPER-ATURE (DEG C) | SEDI-MENT, SUS-PENDED (MG/L) | SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) | SED. SUSP. FALL DIAM. % FINER THAN .002 MM | SED. SUSP. FALL DIAM. % FINER THAN .004 MM |
|---|---|---|---|---|---|---|---|
| MAR | | | | | | | |
| 02... | 1200 | 20 | 10.0 | 48500 | 2670 | 68 | 78 |
| 02... | 1600 | 17 | 10.0 | 44600 | 2060 | 70 | 85 |
| JUL | | | | | | | |
| 26... | 1800 | 10 | 28.0 | 109000 | 3180 | 59 | 82 |
| SEP | | | | | | | |
| 25... | 1200 | 114 | 18.0 | 123000 | 37900 | 55 | 67 |

| DATE | SED. SUSP. FALL DIAM. % FINER THAN .016 MM | SED. SUSP. FALL DIAM. % FINER THAN .062 MM | SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM | SED. SUSP. FALL DIAM. % FINER THAN .125 MM | SED. SUSP. SIEVE DIAM. % FINER THAN .250 MM | SED. SUSP. FALL DIAM. % FINER THAN .500 MM | SED. SUSP. SIEVE DIAM. % FINER THAN .500 MM |
|---|---|---|---|---|---|---|---|
| MAR | | | | | | | |
| 02... | 92 | -- | 99 | -- | 99 | -- | 100 |
| 02... | 96 | -- | 99 | -- | -- | -- | 100 |
| JUL | | | | | | | |
| 26... | 96 | -- | 99 | -- | 99 | -- | 100 |
| SEP | | | | | | | |
| 25... | 88 | 98 | -- | 99 | -- | 100 | -- |

## 09401400 MOENKOPI WASH NEAR TUBA CITY, AZ

LOCATION.--Lat 36°01'25", long 111°23'48", in sec.35, T.31 N., R.9 E. (unsurveyed), Coconino County, Hydrologic Unit 15020018, on Navajo Indian Reservation, on downstream side of bridge on U.S. Highway 89, 3,500 ft (1,070 m) downstream from Hamblin Wash, 11 mi (18 km) upstream from mouth, and 12 mi (19 km) southwest of Tuba City.

DRAINAGE AREA.--2,500 $mi^2$ (6,500 $km^2$), approximately, of which about 1,200 $mi^2$ (3,100 $km^2$) is partly or entirely noncontributing.

PERIOD OF RECORD.--June 1941 to December 1953 (published as "near Tuba"), February 1965 to September 1978 (discontinued). Records for July 1926 to June 1941 at site 8 mi (13 km) upstream not equivalent.

REVISED RECORDS.--WSP 1213: 1943(M). WSP 1926: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 4,309 ft (1,313.4 m) National Geodetic Vertical Datum of 1929. June 23, 1941, to Dec. 10, 1953, at site 2,500 ft (760 m) upstream at datum 4,310.96 ft (1,313.981 m) NGVD (State Highway Department bench mark).

REMARKS.--Records poor. Diversions above station for irrigation of about 500 acres (2.0 $km^2$).

AVERAGE DISCHARGE.--25 years (water years 1942-53, 1966-78), 14.7 $ft^3/s$ (0.416 $m^3/s$), 10,650 acre-ft/yr (13.1 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,100 $ft^3/s$ (343 $m^3/s$) Oct. 19, 1972, gage height, 16.98 ft (5.176 m), from floodmarks in recorder shelter; no flow for many days in each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--A discharge of 15,100 $ft^3/s$ (428 $m^3/s$) occurred 8 mi (13 km) upstream (published as "near Tuba City") Aug. 4, 1929, from rating curve extended above 200 $ft^3/s$ (5.7 $m^3/s$) on basis of slope-area measurement of peak flow; maximum discharge for period 1926-41.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,710 $ft^3/s$ (48.4 $m^3/s$) June 28, gage height, 10.35 ft (3.155 m), base discharge 1,400 $ft^3/s$ (40 $m^3/s$); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .00 | 1.0 | 3.2 | 4.0 | 1.0 | 142 | 10 | .00 | .00 | .00 | .00 | .00 |
| 2 | .00 | 1.0 | 3.2 | 4.0 | 1.0 | 38 | 8.0 | .00 | .00 | .00 | .00 | .00 |
| 3 | .00 | 1.4 | 3.8 | 4.0 | 1.0 | 24 | 7.5 | .00 | .00 | .00 | .00 | .00 |
| 4 | .10 | 1.0 | 3.8 | 3.5 | 1.0 | 16 | 5.0 | .00 | .00 | .00 | .00 | .00 |
| 5 | .20 | 1.0 | 3.5 | 3.8 | 1.0 | 18 | 2.0 | .00 | .00 | .00 | .00 | .00 |
| 6 | 1.2 | 1.0 | 3.8 | 4.1 | 1.0 | .20 | 1.0 | .00 | .00 | .00 | .00 | 36 |
| 7 | .50 | 2.0 | 3.5 | 4.1 | 1.0 | .00 | .00 | .00 | .00 | .00 | .00 | 12 |
| 8 | .50 | 4.8 | 3.5 | 3.5 | 1.0 | .00 | .00 | .00 | .00 | .00 | .00 | .20 |
| 9 | .50 | 2.0 | 3.0 | 2.7 | 1.0 | .00 | .00 | .00 | .00 | .00 | .00 | .20 |
| 10 | .50 | 2.0 | 3.0 | 11 | 1.0 | .00 | .00 | .00 | .00 | .00 | .00 | .20 |
| 11 | .50 | 1.7 | 3.2 | 13 | 1.0 | .00 | .00 | .00 | .00 | .00 | .00 | .20 |
| 12 | .50 | 1.0 | 3.8 | 5.0 | 1.0 | 19 | .00 | .00 | .00 | .00 | .00 | .20 |
| 13 | .50 | 2.0 | 3.2 | 4.0 | 10 | 1.0 | .00 | .00 | .00 | .00 | .00 | .20 |
| 14 | .80 | 2.0 | 3.0 | 3.0 | 3.0 | .50 | .00 | .00 | .00 | .00 | .00 | .20 |
| 15 | .50 | 2.7 | 3.0 | 32 | 4.0 | .20 | .00 | .00 | .00 | .00 | .00 | .20 |
| 16 | 1.0 | 2.0 | 4.8 | 6.0 | 4.0 | .20 | .00 | .00 | .00 | .00 | .00 | 3.4 |
| 17 | 1.0 | 2.0 | 4.5 | 4.0 | 4.1 | .20 | .00 | .00 | .00 | .00 | .00 | .20 |
| 18 | 1.0 | 2.0 | 4.5 | 3.0 | 3.2 | .20 | .00 | .00 | .00 | .00 | .00 | .10 |
| 19 | 1.3 | 2.0 | 5.2 | 69 | 3.0 | .20 | .00 | .00 | .00 | .00 | .00 | .00 |
| 20 | 1.2 | 2.0 | 4.8 | 57 | 3.0 | .20 | .00 | .00 | .00 | .00 | 48 | .00 |
| 21 | 1.0 | 2.2 | 5.2 | 10 | 3.0 | .20 | .00 | .00 | .00 | .00 | 2.0 | .00 |
| 22 | 1.0 | 2.3 | 3.2 | 5.0 | 3.0 | .20 | .00 | .00 | .00 | .00 | .00 | .00 |
| 23 | 1.0 | 2.3 | 3.8 | 3.0 | 3.2 | .20 | .00 | .00 | .00 | .00 | .00 | .00 |
| 24 | 1.0 | 2.5 | 5.6 | 2.0 | 2.7 | .20 | .00 | .00 | .00 | .00 | .00 | .00 |
| 25 | 1.0 | 2.5 | 4.5 | 2.0 | 2.5 | .20 | .00 | .00 | .00 | .00 | .00 | 62 |
| 26 | .40 | 2.5 | 3.0 | 1.8 | 2.3 | .20 | .00 | .00 | .00 | .00 | .00 | 13 |
| 27 | .40 | 2.5 | 3.2 | 1.8 | 2.3 | .20 | .00 | .00 | .00 | .00 | .00 | .00 |
| 28 | .40 | 2.5 | 9.1 | 1.5 | 48 | .20 | .00 | .00 | 157 | .00 | .00 | .00 |
| 29 | .40 | 2.7 | 5.0 | 1.5 | --- | .20 | .00 | .00 | 14 | .00 | .00 | .00 |
| 30 | 1.0 | 4.1 | 4.0 | 1.8 | --- | .20 | .00 | .00 | .00 | .00 | .00 | .00 |
| 31 | 1.0 | --- | 4.0 | 2.0 | --- | .20 | --- | .00 | --- | .00 | .00 | --- |
| TOTAL | 20.40 | 62.7 | 124.9 | 273.1 | 115.3 | 262.10 | 33.50 | .00 | 171.00 | .00 | 50.00 | 128.30 |
| MEAN | .66 | 2.09 | 4.03 | 8.81 | 4.12 | 8.45 | 1.12 | .000 | 5.70 | .000 | 1.61 | 4.28 |
| MAX | 1.3 | 4.8 | 9.1 | 69 | 48 | 142 | 10 | .00 | 157 | .00 | 48 | 62 |
| MIN | .00 | 1.0 | 3.0 | 1.5 | 1.0 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| AC-FT | 40 | 124 | 248 | 542 | 229 | 520 | 66 | .00 | 339 | .00 | 99 | 254 |

CAL YR 1977 TOTAL 5271.90 MEAN 14.4 MAX 1500 MIN .00 AC-FT 10460
WTR YR 1978 TOTAL 1241.30 MEAN 3.40 MAX 157 MIN .00 AC-FT 2460

NOTE.--No gage-height record Oct. 1 to Nov. 20, Apr. 4 to June 27, June 30 to Aug. 19.

## 09402000 LITTLE COLORADO RIVER NEAR CAMERON, AZ

LOCATION.--Lat 35°55'35", long 111°34'00", in NW¼ sec.5, T.29 N., R.8 E. (unsurveyed), Coconino County, Hydrologic Unit 15020016, in Navajo Indian Reservation, on left bank 3 mi (5 km) downstream from Coconino damsite, 9.5 mi (15.3 km) downstream from Moenkopi Wash, 9.5 mi (15.3 km) northwest of Cameron, and 45 mi (72 km) upstream from mouth.

DRAINAGE AREA.--26,500 $mi^2$ (68,600 $km^2$), approximately.

PERIOD OF RECORD.--June 1947 to current year.

GAGE.--Water-stage recorder. Datum of gage is 3,979.2 ft (1,212.86 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except for periods of no gage-height record, which are poor. Diversions above station for irrigation of about 32,000 acres (130 $km^2$), and for municipal uses. Some regulation by reservoirs above station (combined capacity of principal reservoirs, about 127,000 acre-ft or 157 $hm^3$).

AVERAGE DISCHARGE.--31 years, 220 $ft^3/s$ (6.23 $m^3/s$), 159,400 acre-ft/yr (197 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,900 $ft^3/s$ (705 $m^3/s$) Jan. 21, 1952, gage height, 20.7 ft (6.31 m); no flow at times in each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--A discharge of about 120,000 $ft^3/s$ (3,400 $m^3/s$) occurred on Sept. 19 or 20, 1929, based on discharge at Grand Falls.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*) and peak discharges above base of 4,000 $ft^3/s$ (113 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|
| Mar. 6 | 2100 | *9,540 | 267 | 12.50 | 3.810 |
| Mar. 24 | unknown | unknown | | unknown | |

No flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 231 | .00 | 1.2 | 3.1 | 22 | 761 | 1770 | 88 | .00 | .00 | .00 | .00 |
| 2 | 105 | .00 | 1.4 | 2.4 | 640 | 151 | 1940 | 93 | .00 | .00 | .00 | .00 |
| 3 | 68 | .00 | 1.1 | 2.0 | 474 | 2350 | 2120 | 82 | .00 | .00 | .40 | .00 |
| 4 | 46 | .00 | 1.4 | 1.8 | 270 | 3310 | 2340 | 65 | .00 | .00 | .10 | .00 |
| 5 | 28 | .00 | 1.4 | 1.8 | 133 | 5290 | 1710 | 51 | .00 | .00 | .00 | .00 |
| 6 | 39 | .00 | 1.2 | 2.0 | 95 | 8710 | 1400 | 48 | .00 | .00 | .00 | 75 |
| 7 | 43 | 3.0 | 1.2 | 2.2 | 72 | 7000 | 1220 | 41 | .00 | .00 | .00 | 85 |
| 8 | 1180 | 17 | 1.2 | 1.8 | 53 | 4000 | 1080 | 30 | .00 | .00 | .00 | 20 |
| 9 | 723 | 5.7 | .80 | 1.8 | 40 | 2000 | 983 | 20 | .00 | .00 | .00 | 10 |
| 10 | 238 | 3.4 | .80 | 2.2 | 32 | 1000 | 902 | 25 | .00 | .00 | .00 | 5.0 |
| 11 | 106 | 1.4 | .70 | 3.1 | 26 | 700 | 824 | 144 | .00 | .00 | .00 | 1.0 |
| 12 | 68 | 27 | .70 | 4.7 | 23 | 500 | 614 | 131 | .00 | .00 | .00 | .00 |
| 13 | 51 | 59 | 1.0 | 3.8 | 23 | 400 | 465 | 93 | .00 | .00 | .00 | .00 |
| 14 | 35 | 48 | 1.0 | 2.8 | 29 | 200 | 400 | 69 | .00 | .00 | .00 | .00 |
| 15 | 24 | 37 | .80 | 4.4 | 26 | 100 | 716 | 49 | .00 | .00 | .00 | .00 |
| 16 | 18 | 25 | .50 | 11 | 20 | 90 | 836 | 45 | .00 | .00 | .00 | .00 |
| 17 | 13 | 19 | 1.2 | 12 | 14 | 80 | 764 | 40 | .00 | .00 | .00 | 38 |
| 18 | 7.4 | 14 | 1.6 | 7.8 | 67 | 70 | 686 | 20 | .00 | .00 | .00 | 38 |
| 19 | 4.7 | 12 | 2.2 | 5.4 | 100 | 60 | 590 | 10 | .00 | .00 | .00 | 10 |
| 20 | 3.8 | 8.2 | .70 | 50 | 95 | 50 | 465 | 5.0 | .00 | .00 | .00 | 5.0 |
| 21 | 3.1 | 6.1 | .40 | 9.9 | 77 | 60 | 333 | 2.0 | .00 | .00 | 63 | 1.0 |
| 22 | 2.0 | 5.4 | .50 | 6.6 | 59 | 90 | 288 | 1.0 | .00 | .00 | 16 | .00 |
| 23 | .30 | 3.8 | .70 | 4.0 | 55 | 500 | 242 | .00 | .00 | .00 | .00 | .00 |
| 24 | .10 | 2.6 | .70 | 2.6 | 53 | 4000 | 212 | .00 | .00 | .00 | .00 | 193 |
| 25 | .00 | 1.8 | 2.0 | 2.0 | 34 | 3500 | 195 | .00 | .00 | .00 | 3.8 | 24 |
| 26 | .00 | 1.6 | 2.4 | 1.6 | 31 | 3000 | 172 | .00 | .00 | .00 | 31 | 80 |
| 27 | .00 | 1.1 | 1.4 | 33 | 31 | 2400 | 143 | .00 | .00 | .00 | 7.8 | 20 |
| 28 | .00 | .80 | 1.7 | 37 | 56 | 2040 | 121 | .00 | 47 | .00 | .20 | 5.0 |
| 29 | .00 | 1.0 | 35 | 29 | --- | 1940 | 108 | .00 | 55 | .00 | .00 | 1.0 |
| 30 | .00 | 1.0 | 13 | 30 | --- | 1890 | 93 | .00 | .00 | .00 | .00 | .00 |
| 31 | .00 | --- | 4.7 | 22 | --- | 1820 | --- | .00 | --- | .00 | .00 | --- |
| TOTAL | 3037.40 | 304.90 | 84.60 | 303.8 | 2650 | 58062 | 23732 | 1152.00 | 102.00 | .00 | 122.30 | 611.00 |
| MEAN | 98.0 | 10.2 | 2.73 | 9.80 | 94.6 | 1873 | 791 | 37.2 | 3.40 | .000 | 3.95 | 20.4 |
| MAX | 1180 | 59 | 35 | 50 | 640 | 8710 | 2340 | 144 | 55 | .00 | 63 | 193 |
| MIN | .00 | .00 | .40 | 1.6 | 14 | 50 | 93 | .00 | .00 | .00 | .00 | .00 |
| AC-FT | 6020 | 605 | 168 | 603 | 5260 | 115200 | 47070 | 2280 | 202 | .00 | 243 | 1210 |

CAL YR 1977 TOTAL 38207.50 MEAN 105 MAX 2980 MIN .00 AC-FT 75780
WTR YR 1978 TOTAL 90162.00 MEAN 247 MAX 8710 MIN .00 AC-FT 178800

## 09402500 COLORADO RIVER NEAR GRAND CANYON, AZ

LOCATION.--Lat 36°06'05", long 112°05'08", in sec.5, T.31 N., R.3 E. (unsurveyed), Coconino County, Hydrologic Unit 15010001, in Grand Canyon National Park, on left bank 0.2 mi (0.3 km) upstream from Kaibab Bridge, 0.4 mi (0.6 km) upstream from Bright Angel Creek, 4.5 mi (7.2 km) northeast of village of Grand Canyon, 26 mi (42 km) downstream from Little Colorado River, and 267 mi (430 km) upstream from Hoover Dam.

DRAINAGE AREA.--141,600 $mi^2$ (366,700 $km^2$) approximately, including 3,959 $mi^2$ (10,254 $km^2$) in Great Divide basin in southern Wyoming which is noncontributing (previously considered part of the Missouri River basin).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1922 to current year. Prior to 1944, published as "Colorado River at Bright Angel Creek, near Grand Canyon." Gage-gage records collected 1.5 mi (2.4 km) downstream 1908-13, published in reports of U.S. Weather Bureau.

GAGE.--Water-stage recorder with supplementary water-stage recorder on right bank 700 ft (213 m) downstream (prior to Oct. 1, 1934, supplementary gage was the only gage). Datum of both gages is 2,418.7 ft (737.22 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Flow regulated by Lake Powell, 104 mi (167 km) upstream, since Mar. 13, 1963. (See elsewhere in this report.) Many diversions above station for irrigation, municipal, and industrial uses.

AVERAGE DISCHARGE (unadjusted for storage in Lake Powell).--40 years (water years 1923-62), 16,930 $ft^3/s$ (479.5 $m^3/s$), 12,260,000 acre-ft/yr (15,100 $hm^3/yr$); 14 years (water years 1965-78) 12,650 $ft^3/s$ (358.2 $m^3/s$), 9,165,000 acre-ft/yr (11,300 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 127,000 $ft^3/s$ (3,600 $m^3/s$) July 2, 1927, gage height, 29.25 ft (8.915 m); minimum, 700 $ft^3/s$ (19.8 $m^3/s$) Dec. 28, 1924, gage height, -0.70 ft (-0.213 m).

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge since at least 1884, 300,000 $ft^3/s$ (8,500 $m^3/s$) about July 8, 1884 (computed on basis of flood studies at Lees Ferry). Crest discharge of flood of June 19, 1921, was 220,000 $ft^3/s$ (6,230 $m^3/s$), gage height, 37.5 ft (11.43 m) from floodmarks, from rating curve extended above 120,000 $ft^3/s$ (3,400 $m^3/s$).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 29,400 $ft^3/s$ (832.6 $m^3/s$) Sept. 9, gage height, 15.87 ft (4.837 m); minimum daily, 1,720 $ft^3/s$ (48.71 $m^3/s$) Oct. 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 17500 | 3500 | 11300 | 9980 | 17200 | 15400 | 11500 | 8680 | 13300 | 11200 | 14600 | 21500 |
| 2 | 7420 | 2750 | 13900 | 13300 | 15700 | 15000 | 9680 | 7890 | 15700 | 7350 | 13400 | 20100 |
| 3 | 4980 | 2750 | 9300 | 15700 | 13700 | 15100 | 8830 | 9330 | 15200 | 6700 | 14700 | 16600 |
| 4 | 8300 | 6230 | 5250 | 16400 | 11400 | 19500 | 8680 | 10800 | 16800 | 8110 | 15100 | 17400 |
| 5 | 9480 | 9360 | 4170 | 17900 | 7470 | 14600 | 7960 | 11900 | 9200 | 6900 | 16500 | 19000 |
| 6 | 7820 | 8430 | 7900 | 19600 | 5560 | 16100 | 7930 | 11200 | 16800 | 9080 | 14000 | 23600 |
| 7 | 9790 | 6260 | 9600 | 18100 | 9510 | 17700 | 8680 | 6940 | 14900 | 7950 | 14400 | 24700 |
| 8 | 9620 | 9400 | 12600 | 16900 | 11900 | 15800 | 7760 | 6120 | 11200 | 12800 | 18800 | 24300 |
| 9 | 7120 | 10500 | 14800 | 12300 | 11000 | 14200 | 6630 | 8870 | 15500 | 9070 | 19800 | 23300 |
| 10 | 5850 | 8340 | 14000 | 16600 | 10600 | 11500 | 6400 | 9750 | 16000 | 12300 | 18500 | 16800 |
| 11 | 8020 | 7460 | 7660 | 17800 | 9400 | 14200 | 6550 | 9050 | 10900 | 13500 | 16800 | 20100 |
| 12 | 8720 | 7470 | 8640 | 13200 | 5720 | 8100 | 6130 | 10100 | 7680 | 13700 | 18600 | 19300 |
| 13 | 9290 | 4020 | 12400 | 13000 | 4390 | 8970 | 6300 | 8180 | 11900 | 12400 | 16000 | 18200 |
| 14 | 7780 | 2830 | 13400 | 12800 | 11100 | 9550 | 7040 | 6970 | 14100 | 13100 | 15700 | 16700 |
| 15 | 4160 | 4370 | 14000 | 13700 | 10900 | 7810 | 7120 | 6410 | 18200 | 14200 | 14700 | 18100 |
| 16 | 2650 | 5190 | 12300 | 12000 | 11100 | 6320 | 6720 | 10800 | 17200 | 10500 | 19600 | 14900 |
| 17 | 1720 | 7500 | 13300 | 16400 | 11600 | 6180 | 7200 | 9230 | 13500 | 10300 | 20200 | 11800 |
| 18 | 4380 | 8770 | 14000 | 13500 | 11600 | 5410 | 7640 | 10700 | 9990 | 13100 | 21000 | 10200 |
| 19 | 6640 | 9350 | 14200 | 14900 | 9270 | 4410 | 8030 | 9750 | 6340 | 14200 | 16900 | 12000 |
| 20 | 5110 | 6790 | 17500 | 18900 | 8720 | 3960 | 8230 | 7440 | 13000 | 12600 | 13400 | 12000 |
| 21 | 7020 | 7140 | 17900 | 20000 | 8750 | 9490 | 10500 | 5940 | 9120 | 13300 | 17100 | 13100 |
| 22 | 5050 | 13500 | 17700 | 14000 | 10800 | 8640 | 10600 | 5540 | 14800 | 10600 | 20700 | 14800 |
| 23 | 4720 | 10100 | 17700 | 11400 | 10600 | 9970 | 8960 | 11100 | 15400 | 10500 | 21200 | 12900 |
| 24 | 5130 | 6870 | 15800 | 19500 | 13300 | 10800 | 6830 | 11900 | 16600 | 7120 | 22200 | 13500 |
| 25 | 7010 | 4200 | 14300 | 19800 | 12300 | 10500 | 8040 | 15000 | 8480 | 9800 | 23700 | 14000 |
| 26 | 7350 | 3120 | 12200 | 17100 | 9050 | 11500 | 9070 | 15300 | 6490 | 14000 | 23800 | 16500 |
| 27 | 7870 | 4460 | 13600 | 15600 | 11400 | 9670 | 8100 | 13400 | 12700 | 15000 | 16900 | 16200 |
| 28 | 8630 | 3790 | 17300 | 15100 | 14200 | 14400 | 7760 | 7790 | 11800 | 15900 | 15000 | 15900 |
| 29 | 6540 | 5120 | 17200 | 10300 | --- | 12200 | 7210 | 6580 | 11300 | 14300 | 20800 | 17600 |
| 30 | 3080 | 5650 | 16100 | 7030 | --- | 13200 | 10600 | 6010 | 12100 | 10400 | 18100 | 16400 |
| 31 | 2430 | --- | 15300 | 16100 | --- | 9700 | --- | 14000 | --- | 11500 | 18300 | --- |
| TOTAL | 211180 | 195220 | 405320 | 468910 | 298240 | 349880 | 242680 | 292670 | 386200 | 351480 | 550500 | 511500 |
| MEAN | 6812 | 6507 | 13070 | 15130 | 10650 | 11290 | 8089 | 9441 | 12870 | 11340 | 17760 | 17050 |
| MAX | 17500 | 13500 | 17900 | 20000 | 17200 | 19500 | 11500 | 15300 | 18200 | 15900 | 23800 | 24700 |
| MIN | 1720 | 2750 | 4170 | 7030 | 4390 | 3960 | 6130 | 5540 | 6340 | 6700 | 13400 | 10200 |
| AC-FT | 418900 | 387200 | 804000 | 930100 | 591600 | 694000 | 481400 | 580500 | 766000 | 697200 | 1092000 | 1015000 |

CAL YR 1977 TOTAL 3829920 MEAN 10490 MAX 27100 MIN 1380 AC-FT 7597000
WTR YR 1978 TOTAL 4263780 MEAN 11680 MAX 24700 MIN 1720 AC-FT 8457000

09402500 COLORADO RIVER NEAR GRAND CANYON, AZ--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1925 to November 1942, September 1943 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1964 to March 1974.
WATER TEMPERATURES: October 1940 to October 1942, September 1943 to September 1976.
SUSPENDED-SEDIMENT DISCHARGE: October 1925 to November 1942, September 1943 to September 1972.

INSTRUMENTATION.--Water-temperature recorder from October 1952 to September 1976.

REMARKS.--Unpublished chemical analyses for period October 1930 to September 1940, daily specific conductance measurements for period October 1937 to November 1942, September 1943 to September 1964, and daily water temperatures for period October 1936 to September 1940, available from district office in Tucson, Ariz.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 04... | 1000 | 9290 | 1000 | 8.2 | 11.0 | 300 | 150 | 76 |
| DEC | | | | | | | | |
| 04... | 1300 | 5950 | 950 | 8.1 | 9.5 | 310 | 180 | 77 |
| JAN | | | | | | | | |
| 03... | 1000 | 17500 | 850 | 8.0 | 9.0 | 300 | 180 | 74 |
| FEB | | | | | | | | |
| 23... | 1700 | 13100 | 965 | 7.8 | 9.0 | 320 | 180 | 80 |
| APR | | | | | | | | |
| 02... | 1155 | 7760 | 940 | 8.2 | 11.0 | 290 | 140 | 77 |
| JUN | | | | | | | | |
| 08... | 0830 | 12200 | 950 | 8.1 | 9.0 | 330 | 190 | 82 |
| JUL | | | | | | | | |
| 03... | 1000 | 5880 | 1050 | 8.4 | 14.0 | 310 | 170 | 76 |
| AUG | | | | | | | | |
| 05... | 0900 | 22400 | 1000 | 8.1 | 13.0 | -- | -- | -- |
| SEP | | | | | | | | |
| 05... | 0900 | 26000 | 950 | 7.9 | 13.0 | 340 | 220 | 88 |

09402500 COLORADO RIVER NEAR GRAND CANYON, AZ--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) | SODIUM ADSORPTION RATIO | POTASSIUM, DISSOLVED (MG/L AS K) | BICARBONATE (MG/L AS HCO3) | CARBONATE (MG/L AS CO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) | FLUORIDE, DISSOLVED (MG/L AS F) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 04... | 27 | 110 | 2.8 | 4.1 | 190 | 0 | 230 | 110 | .3 |
| DEC | | | | | | | | | |
| 04... | 28 | 96 | 2.4 | 4.1 | 160 | 0 | 250 | 85 | .4 |
| JAN | | | | | | | | | |
| 03... | 28 | 89 | 2.2 | 3.8 | 150 | 0 | 250 | 89 | .4 |
| FEB | | | | | | | | | |
| 23... | 28 | 93 | 2.3 | 4.3 | 170 | 0 | 260 | 70 | .3 |
| APR | | | | | | | | | |
| 02... | 24 | 100 | 2.6 | 3.9 | 190 | 0 | 210 | 87 | .3 |
| JUN | | | | | | | | | |
| 08... | 31 | 110 | 2.6 | 4.3 | 170 | 0 | 260 | 95 | .3 |
| JUL | | | | | | | | | |
| 03... | 29 | 110 | 2.7 | 4.4 | 170 | 1 | 270 | 92 | .3 |
| AUG | | | | | | | | | |
| 05... | -- | -- | -- | -- | 170 | 0 | 260 | 87 | .3 |
| SEP | | | | | | | | | |
| 05... | 29 | 110 | 2.6 | 4.3 | 150 | 0 | 280 | 87 | .5 |

| DATE | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | SOLIDS, DISSOLVED (TONS PER AC-FT) | NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) | PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P) | BORON, DISSOLVED (UG/L AS B) | IRON, DISSOLVED (UG/L AS FE) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 04... | 8.6 | 691 | 660 | .94 | -- | -- | 130 | 30 |
| DEC | | | | | | | | |
| 04... | 8.5 | 627 | 628 | .85 | -- | -- | 110 | 10 |
| JAN | | | | | | | | |
| 03... | 8.2 | 609 | 616 | .83 | -- | -- | 110 | 20 |
| FEB | | | | | | | | |
| 23... | 7.5 | 634 | 627 | .86 | -- | -- | 130 | 160 |
| APR | | | | | | | | |
| 02... | 8.0 | 610 | 606 | .83 | .49 | .01 | 110 | 10 |
| JUN | | | | | | | | |
| 08... | 8.6 | 717 | 679 | .98 | .97 | -- | 130 | 30 |
| JUL | | | | | | | | |
| 03... | 6.5 | 697 | 675 | .95 | .48 | -- | 130 | <10 |
| AUG | | | | | | | | |
| 05... | 8.0 | 683 | -- | .93 | .56 | -- | 130 | -- |
| SEP | | | | | | | | |
| 05... | 7.6 | 696 | 681 | .95 | .10 | -- | 140 | 20 |

< Actual value is known to be less than value shown.

## 09403780 KANAB CREEK NEAR FREDONIA, AZ

LOCATION.--Lat 36°51'50", long 112°34'45", in SE¼ sec.14, T.40 N., R.3 W. (unsurveyed), Coconino County, Hydrologic Unit 15010003, in Kaibab Indian Reservation, at Nagles Crossing, on left bank 0.2 mi (0.3 km) downstream from Johnson Wash and 6.5 mi (10.5 km) southwest of Fredonia.

DRAINAGE AREA.--1,085 $mi^2$ (2,810 $km^2$).

PERIOD OF RECORD.--October 1963 to current year.

REVISED RECORDS.--WRD Ariz. 1974: 1969.

GAGE.--Water-stage recorder and concrete control with supplementary water-stage recorder at control since Apr. 14, 1975. Altitude of gages is 4,500 ft (1,372 m), from topographic map.

REMARKS.--Records good except for periods when both gages were inoperable (Jan. 21, 24, and 28), which are poor. Diversions upstream for irrigation of about 1,400 acres (5.67 $km^2$) in Utah and 800 acres (3.24 $km^2$) in Arizona in 1967.

AVERAGE DISCHARGE.--15 years, 5.57 $ft^3/s$ (0.158 $m^3/s$), 4,040 acre-ft/yr (4.98 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,630 $ft^3/s$ (131 $m^3/s$) Aug. 18, 1970, gage height, 9.11 ft (2.777 m), inside, 9.7 ft (2.96 m), from profile past gage, from rating curve extended above 850 $ft^3/s$ (24 $m^3/s$) on basis of slope-area measurement of peak flow; no flow for most of time.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*) and peak discharges above base of 300 $ft^3/s$ (8.5 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|
| Mar. 5 | 0730 | 302 | 8.55 | 2.67 | 0.814 |
| Apr. 11 | 0400 | *460 | 13.0 | 3.00 | 0.914 |
| Aug. 4 | 0500 | 362 | 10.3 | 2.78 | 0.847 |

No flow for most of the year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .00 | .00 | .51 | .00 | .36 | 67 | 183 | .98 | .00 | .00 | .00 | .00 |
| 2 | .00 | .00 | .12 | .00 | .21 | 112 | 138 | 2.1 | .00 | .00 | .00 | .00 |
| 3 | .00 | .00 | .03 | .00 | .00 | 194 | 94 | 1.5 | .00 | .00 | 8.7 | .00 |
| 4 | .00 | .00 | .00 | .06 | 6.6 | 73 | 47 | .17 | .00 | .00 | 76 | .00 |
| 5 | .00 | .00 | .00 | .01 | 8.5 | 199 | 45 | .00 | .00 | .00 | .00 | .00 |
| 6 | 2.6 | .00 | .00 | .00 | 11 | 105 | 32 | .00 | .00 | .00 | .00 | .00 |
| 7 | .27 | .00 | .00 | .00 | 24 | 40 | 20 | .00 | .00 | .00 | .00 | .00 |
| 8 | .09 | .00 | .00 | .00 | 16 | 27 | 18 | .00 | .00 | .00 | .00 | .00 |
| 9 | .03 | .00 | .00 | .00 | 18 | 26 | 17 | .00 | .00 | .00 | .00 | .00 |
| 10 | .00 | .00 | .00 | .54 | 51 | 9.5 | 15 | .00 | .00 | .00 | .00 | .00 |
| 11 | .00 | .00 | .00 | .49 | 37 | 31 | 175 | .00 | .00 | .00 | .00 | .00 |
| 12 | .00 | .00 | .00 | .34 | 14 | 53 | 98 | .00 | .00 | .00 | .00 | .00 |
| 13 | .00 | .00 | .00 | .00 | 13 | 25 | 32 | .00 | .00 | .00 | .00 | .00 |
| 14 | .00 | .00 | .00 | .00 | 17 | 17 | 13 | .00 | .00 | .00 | .00 | .00 |
| 15 | .00 | .00 | .00 | 12 | 16 | 15 | 6.0 | .00 | .00 | .00 | .00 | 1.1 |
| 16 | .00 | .00 | .00 | 2.3 | 12 | 14 | 2.0 | .00 | .00 | .00 | .00 | .08 |
| 17 | .00 | .00 | .00 | 10 | 9.9 | 13 | .00 | .00 | .00 | .00 | .00 | 56 |
| 18 | .00 | .00 | .00 | .67 | 12 | 15 | .00 | .00 | .00 | .00 | .00 | .35 |
| 19 | .00 | .00 | .00 | 2.5 | 11 | 30 | .00 | .00 | .00 | .00 | .00 | .00 |
| 20 | 7.3 | .00 | .00 | 1.7 | 11 | 94 | .00 | .00 | .00 | .00 | .00 | .00 |
| 21 | .99 | .00 | .00 | .11 | 9.6 | 126 | .00 | .00 | .00 | .00 | .00 | .00 |
| 22 | .20 | .00 | .00 | .00 | 12 | 179 | .00 | .00 | .00 | .00 | .00 | .00 |
| 23 | .12 | .00 | .00 | .04 | 12 | 192 | .00 | .00 | .00 | .00 | .00 | .00 |
| 24 | .09 | .00 | .00 | .00 | 9.9 | 142 | .00 | .00 | .00 | .00 | .00 | .00 |
| 25 | .00 | .00 | .00 | .00 | 13 | 127 | .00 | .00 | .00 | .00 | .00 | .00 |
| 26 | .00 | .00 | .00 | .35 | 12 | 122 | .00 | .00 | .00 | .00 | .00 | .00 |
| 27 | .00 | .00 | .00 | .57 | 12 | 122 | .00 | .00 | .00 | .00 | .00 | .00 |
| 28 | .00 | .00 | .02 | .23 | 12 | 155 | .00 | .00 | .00 | .00 | .00 | .00 |
| 29 | .00 | .00 | .11 | .00 | --- | 179 | .00 | .00 | .00 | .00 | .00 | .00 |
| 30 | .00 | 4.9 | .06 | .00 | --- | 152 | .00 | .00 | .00 | .00 | .00 | .00 |
| 31 | .00 | --- | .02 | .00 | --- | 138 | --- | .00 | --- | .00 | .00 | --- |
| TOTAL | 11.69 | 4.90 | .87 | 31.91 | 381.07 | 2793.5 | 935.00 | 4.75 | .00 | .00 | 84.70 | 57.53 |
| MEAN | .38 | .16 | .028 | 1.03 | 13.6 | 90.1 | 31.2 | .15 | .000 | .000 | 2.73 | 1.92 |
| MAX | 7.3 | 4.9 | .51 | 12 | 51 | 199 | 183 | 2.1 | .00 | .00 | 76 | 56 |
| MIN | .00 | .00 | .00 | .00 | .00 | 9.5 | .00 | .00 | .00 | .00 | .00 | .00 |
| AC-FT | 23 | 9.7 | 1.7 | 63 | 756 | 5540 | 1850 | 9.4 | .00 | .00 | 168 | 114 |

CAL YR 1977 TOTAL 362.05 MEAN .99 MAX 71 MIN .00 AC-FT 718
WTR YR 1978 TOTAL 4305.92 MEAN 11.8 MAX 199 MIN .00 AC-FT 8540

## 09413300 VIRGIN RIVER AT BLOOMINGTON, UT

LOCATION.--Lat 37°01'49", long 113°37'56", in SW¼ sec.22, T.43 S., R.16 W., Washington County, Hydrologic Unit 15010010, 5.0 mi (8.0 km) downstream from Santa Clara River and 6.2 mi (10.0 km) southwest of St. George.

PERIOD OF RECORD.--May 1978 to current year.

WATER QUALITY DATA

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | TUR-BID-ITY (JTU) | OXYGEN, DIS-SOLVED (MG/L) | COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) | STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAY , 1978 | | | | | | | | | | | |
| 23... | 1045 | 882 | 825 | 8.3 | 17.0 | 200 | 8.7 | -- | -- | 300 | 130 |
| JUN | | | | | | | | | | | |
| 20... | 0910 | 145 | 2150 | 8.4 | 22.0 | 7 | 8.0 | K25 | K2000 | 680 | 600 |
| JUL | | | | | | | | | | | |
| 27... | 0745 | 25 | 4400 | 8.5 | 23.5 | 8 | -- | K720 | K7800 | 1400 | 1200 |
| AUG | | | | | | | | | | | |
| 22... | 1600 | 29 | 4200 | 8.7 | 29.0 | 45 | -- | 270 | 1650 | 1400 | 1200 |
| SEP | | | | | | | | | | | |
| 26... | 1140 | 42 | 3600 | 8.7 | 26.0 | 3 | -- | 350 | -- | 1300 | 1000 |

| DATE | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | BICAR-BONATE (MG/L AS HCO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAY , 1978 | | | | | | | | | | | |
| 23... | 83 | 22 | 68 | 1.7 | 6.4 | 210 | 140 | 83 | .2 | 11 | 529 |
| JUN | | | | | | | | | | | |
| 20... | 180 | 57 | 240 | 4.0 | 19 | 91 | 520 | 320 | .5 | 21 | 1520 |
| JUL | | | | | | | | | | | |
| 27... | 340 | 130 | 510 | 6.0 | 36 | 260 | 1200 | 700 | .9 | 20 | 3230 |
| AUG | | | | | | | | | | | |
| 22... | 330 | 130 | 560 | 6.6 | 42 | 200 | 1400 | 790 | .8 | 16 | 3520 |
| SEP | | | | | | | | | | | |
| 26... | 320 | 120 | 490 | 5.9 | 39 | 300 | 1300 | 580 | .8 | 22 | 3060 |

| DATE | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER AC-FT) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO-GEN, TOTAL (MG/L AS N) | PHOS-PHORUS, TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | ARSENIC DIS-SOLVED (UG/L AS AS) | BARIUM, DIS-SOLVED (UG/L AS BA) | CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) | CADMIUM DIS-SOLVED (UG/L AS CD) |
|---|---|---|---|---|---|---|---|---|---|---|
| MAY , 1978 | | | | | | | | | | |
| 23... | 518 | .72 | -- | -- | -- | -- | 4 | 200 | -- | -- |
| JUN | | | | | | | | | | |
| 20... | 1410 | 2.07 | -- | -- | -- | -- | 9 | 200 | -- | -- |
| JUL | | | | | | | | | | |
| 27... | 3070 | 4.39 | -- | -- | -- | -- | 6 | 100 | -- | -- |
| AUG | | | | | | | | | | |
| 22... | 3370 | 4.79 | -- | -- | -- | -- | 6 | 100 | -- | -- |
| SEP | | | | | | | | | | |
| 26... | 3020 | 4.16 | .86 | 2.2 | .20 | 10 | 11 | 0 | 2 | 1 |

K Based on non-ideal colony count.

09413300 VIRGIN RIVER AT BLOOMINGTON, UT--Continued

WATER QUALITY DATA

| DATE | CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) | CHROMIUM, DISSOLVED (UG/L AS CR) | COBALT, TOTAL RECOVERABLE (UG/L AS CO) | COBALT, DISSOLVED (UG/L AS CO) | COPPER, TOTAL RECOVERABLE (UG/L AS CU) | COPPER, DISSOLVED (UG/L AS CU) | IRON, TOTAL RECOVERABLE (UG/L AS FE) | IRON, DISSOLVED (UG/L AS FE) | LEAD, TOTAL RECOVERABLE (UG/L AS PB) | LEAD, DISSOLVED (UG/L AS PB) |
|---|---|---|---|---|---|---|---|---|---|---|
| MAY , 1978 | | | | | | | | | | |
| 23... | -- | -- | -- | -- | -- | 27 | -- | 0 | -- | 3 |
| JUN | | | | | | | | | | |
| 20... | -- | -- | -- | -- | -- | 12 | -- | 10 | -- | 0 |
| JUL | | | | | | | | | | |
| 27... | -- | -- | -- | -- | -- | 5 | -- | 20 | -- | 0 |
| AUG | | | | | | | | | | |
| 22... | -- | -- | -- | -- | -- | 8 | -- | 40 | -- | 0 |
| SEP | | | | | | | | | | |
| 26... | 10 | 0 | 0 | 1 | 4 | 2 | 1000 | 20 | 34 | 1 |

| DATE | MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) | MANGANESE, DISSOLVED (UG/L AS MN) | MERCURY TOTAL RECOVERABLE (UG/L AS HG) | MERCURY DISSOLVED (UG/L AS HG) | SELENIUM, TOTAL (UG/L AS SE) | SELENIUM, DISSOLVED (UG/L AS SE) | ZINC, TOTAL RECOVERABLE (UG/L AS ZN) | ZINC, DISSOLVED (UG/L AS ZN) | SEDIMENT, SUSPENDED (MG/L) | SEDIMENT DISCHARGE, SUSPENDED (T/DAY) |
|---|---|---|---|---|---|---|---|---|---|---|
| MAY , 1978 | | | | | | | | | | |
| 23... | -- | 20 | -- | -- | -- | 0 | -- | 30 | 2500 | 5950 |
| JUN | | | | | | | | | | |
| 20... | -- | 10 | -- | -- | -- | 0 | -- | 30 | 248 | 97 |
| JUL | | | | | | | | | | |
| 27... | -- | 90 | -- | -- | -- | 0 | -- | 40 | 144 | 9.7 |
| AUG | | | | | | | | | | |
| 22... | -- | 40 | -- | -- | -- | 1 | -- | 30 | 153 | 12 |
| SEP | | | | | | | | | | |
| 26... | 100 | 20 | .0 | .0 | 1 | 1 | 60 | 40 | 208 | 24 |

## 09413600 VIRGIN RIVER BELOW BLACK ROCK GULCH NEAR LITTLEFIELD, AZ

LOCATION.--Lat 36°57'13", long 113°46'46", in NE¼ sec.14, T.41 N., R.14 W., Mohave County, Hydrologic Unit 15010010, 4.2 mi (6.8 km) upstream from Sullivans Canyon, 5.9 mi (9.5 km) downstream from Black Rock Gulch and 9.7 mi (15.6 km) northeast of Littlefield.

PERIOD OF RECORD.--September 1977 to current year.

WATER QUALITY DATA

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | TUR-BID-ITY (JTU) | OXYGEN, DIS-SOLVED (MG/L) | COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) | STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SEP , 1977 | | | | | | | | | | | |
| 20... | -- | .00 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| OCT | | | | | | | | | | | |
| 19... | -- | .00 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | | | | | | |
| 10... | 0900 | 45 | 2900 | 8.1 | 2.5 | 1200 | 13.2 | K800 | 3300 | 800 | 580 |
| DEC | | | | | | | | | | | |
| 14... | 1030 | 22 | 3050 | 8.4 | 3.5 | 450 | 12.0 | K500 | 8900 | 880 | 650 |
| JAN , 1978 | | | | | | | | | | | |
| 24... | 1430 | 127 | 2150 | 8.5 | 6.0 | 550 | 13.0 | -- | -- | 680 | 460 |
| FEB | | | | | | | | | | | |
| 13... | 1500 | 220 | 1520 | 8.5 | 9.5 | 1000 | 13.0 | -- | -- | 526 | 360 |
| MAR | | | | | | | | | | | |
| 28... | 1500 | 591 | 1050 | 8.4 | 20.5 | 950 | 11.7 | -- | -- | 480 | 300 |
| APR | | | | | | | | | | | |
| 25... | 1045 | 685 | 1080 | 8.4 | 15.0 | 260 | 9.3 | 340 | 5800 | 370 | 270 |
| MAY | | | | | | | | | | | |
| 22... | 1330 | 820 | 880 | 8.3 | 20.0 | 250 | 8.0 | 650 | 7600 | 310 | 130 |
| JUN | | | | | | | | | | | |
| 20... | 1700 | 9.8 | 2300 | 8.2 | 29.0 | 50 | 8.2 | K20 | K75 | 640 | 500 |
| JUL | | | | | | | | | | | |
| 25... | -- | .00 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | | | |
| 21... | -- | .00 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| SEP | | | | | | | | | | | |
| 27... | -- | .00 | -- | -- | -- | -- | -- | -- | -- | -- | -- |

| DATE | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | BICAR-BONATE (MG/L AS HCO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SEP , 1977 | | | | | | | | | | | |
| 20... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| OCT | | | | | | | | | | | |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | | | | | | |
| 10... | 210 | 68 | 310 | 4.8 | 21 | 270 | 640 | 430 | .6 | 17 | 1920 |
| DEC | | | | | | | | | | | |
| 14... | 220 | 81 | 360 | 5.3 | 260 | 290 | 730 | 490 | .7 | 19 | 2100 |
| JAN , 1978 | | | | | | | | | | | |
| 24... | 180 | 57 | 230 | 3.8 | 17 | 270 | 490 | 300 | .5 | 15 | 1440 |
| FEB | | | | | | | | | | | |
| 13... | 150 | 36 | 130 | 2.5 | 10 | 200 | 400 | 150 | .4 | 12 | 1040 |
| MAR | | | | | | | | | | | |
| 28... | 130 | 38 | 96 | 1.9 | 10 | 220 | 320 | 110 | .3 | 14 | 844 |
| APR | | | | | | | | | | | |
| 25... | 96 | 31 | 84 | 1.9 | 8.7 | 120 | 250 | 100 | .3 | 12 | 599 |
| MAY | | | | | | | | | | | |
| 22... | 85 | 23 | 74 | 1.8 | 6.9 | 210 | 150 | 89 | .2 | 11 | 554 |
| JUN | | | | | | | | | | | |
| 20... | 160 | 59 | 250 | 4.3 | 20 | 180 | 560 | 320 | .5 | 21 | 1510 |
| JUL | | | | | | | | | | | |
| 25... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | | | |
| 21... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| SEP | | | | | | | | | | | |
| 27... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

K Based on non-ideal colony count.

09413600 VIRGIN RIVER BELOW BLACK ROCK GULCH NEAR LITTLEFIELD, AZ--Continued

WATER QUALITY DATA

| DATE | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER AC-FT) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO-GEN, TOTAL (MG/L AS N) | PHOS-PHORUS, TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | ARSENIC DIS-SOLVED (UG/L AS AS) | BARIUM, DIS-SOLVED (UG/L AS BA) | CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) | CADMIUM DIS-SOLVED (UG/L AS CD) |
|---|---|---|---|---|---|---|---|---|---|---|
| SEP , 1977 | | | | | | | | | | |
| 20... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| OCT | | | | | | | | | | |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | | | | | |
| 10... | 1830 | 2.61 | -- | -- | -- | -- | 9 | 0 | -- | -- |
| DEC | | | | | | | | | | |
| 14... | 2070 | 2.86 | -- | -- | -- | -- | 11 | 100 | -- | -- |
| JAN , 1978 | | | | | | | | | | |
| 24... | 1420 | 1.96 | -- | -- | -- | -- | 9 | 100 | -- | -- |
| FEB | | | | | | | | | | |
| 13... | 988 | 1.41 | -- | -- | -- | -- | 6 | 100 | -- | -- |
| MAR | | | | | | | | | | |
| 28... | 827 | 1.15 | .41 | 2.4 | 1.0 | 9 | 5 | 100 | 2 | 1 |
| APR | | | | | | | | | | |
| 25... | 641 | .81 | -- | -- | -- | -- | 4 | 100 | -- | -- |
| MAY | | | | | | | | | | |
| 22... | 543 | .75 | -- | -- | -- | -- | 4 | 200 | -- | -- |
| JUN | | | | | | | | | | |
| 20... | 1480 | 2.05 | -- | -- | -- | -- | 8 | 200 | -- | -- |
| JUL | | | | | | | | | | |
| 25... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | | |
| 21... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| SEP | | | | | | | | | | |
| 27... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

| DATE | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) | CHRO-MIUM, DIS-SOLVED (UG/L AS CR) | COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) | COBALT, DIS-SOLVED (UG/L AS CO) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) | COPPER, DIS-SOLVED (UG/L AS CU) | IRON, TOTAL RECOV-ERABLE (UG/L AS FE) | IRON, DIS-SOLVED (UG/L AS FE) | LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) | LEAD, DIS-SOLVED (UG/L AS PB) |
|---|---|---|---|---|---|---|---|---|---|---|
| SEP , 1977 | | | | | | | | | | |
| 20... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| OCT | | | | | | | | | | |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | | | | | |
| 10... | -- | -- | -- | -- | -- | 6 | -- | 120 | -- | 6 |
| DEC | | | | | | | | | | |
| 14... | -- | -- | -- | -- | -- | 4 | -- | 40 | -- | 3 |
| JAN , 1978 | | | | | | | | | | |
| 24... | -- | -- | -- | -- | -- | 2 | -- | 250 | -- | 2 |
| FEB | | | | | | | | | | |
| 13... | -- | -- | -- | -- | -- | 2 | -- | 50 | -- | 0 |
| MAR | | | | | | | | | | |
| 28... | 10 | 0 | 8 | 3 | 30 | 7 | 17000 | 180 | 51 | 7 |
| APR | | | | | | | | | | |
| 25... | -- | -- | -- | -- | -- | 2 | -- | 30 | -- | 1 |
| MAY | | | | | | | | | | |
| 22... | -- | -- | -- | -- | -- | 2 | -- | 100 | -- | 2 |
| JUN | | | | | | | | | | |
| 20... | -- | -- | -- | -- | -- | 5 | -- | 10 | -- | 0 |
| JUL | | | | | | | | | | |
| 25... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | | |
| 21... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| SEP | | | | | | | | | | |
| 27... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

09413600 VIRGIN RIVER BELOW BLACK ROCK GULCH NEAR LITTLEFIELD, AZ--Continued

WATER QUALITY DATA

| DATE | MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) | MANGANESE, DISSOLVED (UG/L AS MN) | MERCURY TOTAL RECOVERABLE (UG/L AS HG) | MERCURY DISSOLVED (UG/L AS HG) | SELENIUM, TOTAL (UG/L AS SE) | SELENIUM, DISSOLVED (UG/L AS SE) | ZINC, TOTAL RECOVERABLE (UG/L AS ZN) | ZINC, DISSOLVED (UG/L AS ZN) | SEDIMENT, SUSPENDED (MG/L) | SEDIMENT DISCHARGE, SUSPENDED (T/DAY) |
|---|---|---|---|---|---|---|---|---|---|---|
| SEP , 1977 | | | | | | | | | | |
| 20... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| OCT | | | | | | | | | | |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | | | | | |
| 10... | -- | 60 | -- | -- | -- | 2 | -- | 30 | 5320 | 646 |
| DEC | | | | | | | | | | |
| 14... | -- | 10 | -- | -- | -- | 1 | -- | 10 | 1370 | 81 |
| JAN , 1978 | | | | | | | | | | |
| 24... | -- | 20 | -- | -- | -- | 1 | -- | 20 | 3590 | 1230 |
| FEB | | | | | | | | | | |
| 13... | -- | 40 | -- | -- | -- | 2 | -- | 20 | -- | -- |
| MAR | | | | | | | | | | |
| 28... | 620 | 10 | .0 | .0 | 2 | 1 | 90 | 20 | 3920 | 6260 |
| APR | | | | | | | | | | |
| 25... | -- | 0 | -- | -- | -- | 0 | -- | 20 | 4480 | 8290 |
| MAY | | | | | | | | | | |
| 22... | -- | 0 | -- | -- | -- | 0 | -- | 10 | 3700 | 8190 |
| JUN | | | | | | | | | | |
| 20... | -- | 0 | -- | -- | -- | 0 | -- | 10 | 148 | 3.9 |
| JUL | | | | | | | | | | |
| 25... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | | |
| 21... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| SEP | | | | | | | | | | |
| 27... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

## 09413650 VIRGIN RIVER ABOVE SULLIVANS CANYON NEAR LITTLEFIELD, AZ

LOCATION.--Lat 36°56'57", long 113°47'47", in SE¼ sec.15, T.41 N., R.14 W., Mohave County, Hydrologic Unit 15010010, 2.3 mi (3.7 km) upstream from Sullivans Canyon, 7.8 mi (12.6 km) downstream from Black Rock Gulch and 8.7 mi (14.0 km) northeast of Littlefield.

PERIOD OF RECORD.--September 1977 to current year.

WATER QUALITY DATA

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | TUR-BID-ITY (JTU) | OXYGEN, DIS-SOLVED (MG/L) | COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) | STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SEP , 1977 | | | | | | | | | | | |
| 20... | -- | .00 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| OCT | | | | | | | | | | | |
| 19... | -- | .00 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | | | | | | |
| 09... | 1505 | 51 | 3000 | 8.1 | 9.0 | 1600 | 12.0 | 440 | 2500 | 840 | 630 |
| DEC | | | | | | | | | | | |
| 13... | 1400 | 35 | 2850 | 8.4 | 8.0 | 600 | 11.2 | K1700 | K13000 | 840 | 620 |
| JAN , 1978 | | | | | | | | | | | |
| 25... | 1100 | 102 | 2350 | 8.6 | 3.0 | 420 | 15.6 | -- | -- | 700 | 470 |
| FEB | | | | | | | | | | | |
| 14... | 0800 | 179 | 1500 | 8.5 | 7.0 | 270 | 13.0 | -- | -- | 520 | 360 |
| MAR | | | | | | | | | | | |
| 29... | 0930 | 574 | 1160 | 8.4 | 14.0 | 1300 | 13.0 | -- | -- | 460 | 270 |
| APR | | | | | | | | | | | |
| 25... | 0845 | 549 | 1030 | 8.5 | 14.0 | 360 | 12.0 | 260 | 3000 | 350 | 200 |
| MAY | | | | | | | | | | | |
| 23... | 1230 | 880 | 800 | 8.3 | 18.5 | 320 | 8.5 | 360 | 4200 | 310 | 150 |
| JUN | | | | | | | | | | | |
| 20... | 1445 | 9.1 | 2220 | 8.0 | 33.5 | 70 | 11.2 | K35 | K250 | 640 | 500 |
| JUL | | | | | | | | | | | |
| 25... | -- | .00 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | | | |
| 21... | -- | .00 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| SEP | | | | | | | | | | | |
| 27... | -- | .00 | -- | -- | -- | -- | -- | -- | -- | -- | -- |

| DATE | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | BICAR-BONATE (MG/L AS HCO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SEP , 1977 | | | | | | | | | | | |
| 20... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| OCT | | | | | | | | | | | |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | | | | | | |
| 09... | 220 | 71 | 330 | 5.0 | 23 | 260 | 680 | 460 | .6 | 17 | 1970 |
| DEC | | | | | | | | | | | |
| 13... | 210 | 76 | 310 | 4.7 | 25 | 270 | 660 | 440 | .6 | 18 | 1960 |
| JAN , 1978 | | | | | | | | | | | |
| 25... | 180 | 61 | 240 | 3.9 | 18 | 280 | 510 | 32 | .5 | 16 | 1540 |
| FEB | | | | | | | | | | | |
| 14... | 150 | 36 | 130 | 2.5 | 10 | 200 | 380 | 160 | .5 | 13 | 985 |
| MAR | | | | | | | | | | | |
| 29... | 120 | 38 | 95 | 1.9 | 9.3 | 230 | 310 | 110 | .4 | 14 | 820 |
| APR | | | | | | | | | | | |
| 25... | 95 | 28 | 76 | 1.8 | 7.3 | 190 | 230 | 95 | .2 | 6.4 | 624 |
| MAY | | | | | | | | | | | |
| 23... | 87 | 23 | 75 | 1.8 | 6.6 | 200 | 180 | 92 | .2 | 11 | 563 |
| JUN | | | | | | | | | | | |
| 20... | 160 | 59 | 250 | 4.3 | 20 | 180 | 530 | 320 | .5 | 22 | 1500 |
| JUL | | | | | | | | | | | |
| 25... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | | | |
| 21... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| SEP | | | | | | | | | | | |
| 27... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

K Based on non-ideal colony count.

09413650 VIRGIN RIVER ABOVE SULLIVANS CANYON NEAR LITTLEFIELD, AZ--Continued

WATER QUALITY DATA

| DATE | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER AC-FT) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO-GEN, TOTAL (MG/L AS N) | PHOS-PHORUS, TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | ARSENIC DIS-SOLVED (UG/L AS AS) | BARIUM, DIS-SOLVED (UG/L AS BA) | CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) | CADMIUM DIS-SOLVED (UG/L AS CD) |
|---|---|---|---|---|---|---|---|---|---|---|
| SEP , 1977 | | | | | | | | | | |
| 20... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| OCT | | | | | | | | | | |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | | | | | |
| 09... | 1930 | 2.68 | -- | -- | -- | -- | 8 | 100 | -- | -- |
| DEC | | | | | | | | | | |
| 13... | 1870 | 2.67 | -- | -- | -- | -- | 11 | 100 | -- | -- |
| JAN , 1978 | | | | | | | | | | |
| 25... | 1480 | 2.09 | -- | -- | -- | -- | 10 | 100 | -- | -- |
| FEB | | | | | | | | | | |
| 14... | 979 | 1.34 | -- | -- | -- | -- | 7 | 100 | -- | -- |
| MAR | | | | | | | | | | |
| 29... | 811 | 1.12 | .38 | 1.7 | .91 | 9 | 5 | 100 | 2 | 0 |
| APR | | | | | | | | | | |
| 25... | 632 | .85 | -- | -- | -- | -- | 4 | 0 | -- | -- |
| MAY | | | | | | | | | | |
| 23... | 574 | .77 | -- | -- | -- | -- | 4 | 200 | -- | -- |
| JUN | | | | | | | | | | |
| 20... | 1450 | 2.04 | -- | -- | -- | -- | 8 | 20 | -- | -- |
| JUL | | | | | | | | | | |
| 25... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | | |
| 21... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| SEP | | | | | | | | | | |
| 27... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

| DATE | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) | CHRO-MIUM, DIS-SOLVED (UG/L AS CR) | COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) | COBALT, DIS-SOLVED (UG/L AS CO) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) | COPPER, DIS-SOLVED (UG/L AS CU) | IRON, TOTAL RECOV-ERABLE (UG/L AS FE) | IRON, DIS-SOLVED (UG/L AS FE) | LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) | LEAD, DIS-SOLVED (UG/L AS PB) |
|---|---|---|---|---|---|---|---|---|---|---|
| SEP , 1977 | | | | | | | | | | |
| 20... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| OCT | | | | | | | | | | |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | | | | | |
| 09... | -- | -- | -- | -- | -- | 1 | -- | 20 | -- | 49 |
| DEC | | | | | | | | | | |
| 13... | -- | -- | -- | -- | -- | 2 | -- | 40 | -- | 7 |
| JAN , 1978 | | | | | | | | | | |
| 25... | -- | -- | -- | -- | -- | 5 | -- | 30 | -- | 2 |
| FEB | | | | | | | | | | |
| 14... | -- | -- | -- | -- | -- | 2 | -- | 230 | -- | 0 |
| MAR | | | | | | | | | | |
| 29... | 30 | 0 | 9 | 2 | 48 | 3 | 27000 | 50 | 34 | 1 |
| APR | | | | | | | | | | |
| 25... | -- | -- | -- | -- | -- | 4 | -- | 20 | -- | 1 |
| MAY | | | | | | | | | | |
| 23... | -- | -- | -- | -- | -- | 7 | -- | 0 | -- | 2 |
| JUN | | | | | | | | | | |
| 20... | -- | -- | -- | -- | -- | 7 | -- | 10 | -- | 0 |
| JUL | | | | | | | | | | |
| 25... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | | |
| 21... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| SEP | | | | | | | | | | |
| 27... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

09413650 VIRGIN RIVER ABOVE SULLIVANS CANYON NEAR LITTLEFIELD, AZ--Continued

WATER QUALITY DATA

| DATE | MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) | MANGANESE, DISSOLVED (UG/L AS MN) | MERCURY TOTAL RECOVERABLE (UG/L AS HG) | MERCURY DISSOLVED (UG/L AS HG) | SELENIUM, TOTAL (UG/L AS SE) | SELENIUM, DISSOLVED (UG/L AS SE) | ZINC, TOTAL RECOVERABLE (UG/L AS ZN) | ZINC, DISSOLVED (UG/L AS ZN) | SEDIMENT, SUSPENDED (MG/L) | SEDIMENT DISCHARGE, SUSPENDED (T/DAY) |
|---|---|---|---|---|---|---|---|---|---|---|
| SEP , 1977 | | | | | | | | | | |
| 20... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| OCT | | | | | | | | | | |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | | | | | |
| 09... | -- | 0 | -- | -- | -- | 5 | -- | 20 | 7090 | 976 |
| DEC | | | | | | | | | | |
| 13... | -- | 10 | -- | -- | -- | 1 | -- | 10 | 1740 | 164 |
| JAN , 1978 | | | | | | | | | | |
| 25... | -- | 10 | -- | -- | -- | 1 | -- | 20 | 2740 | 755 |
| FEB | | | | | | | | | | |
| 14... | -- | 20 | -- | -- | -- | 2 | -- | 20 | 3440 | 1660 |
| MAR | | | | | | | | | | |
| 29... | 920 | 10 | .0 | .0 | 2 | 1 | 130 | 20 | 6110 | 9470 |
| APR | | | | | | | | | | |
| 25... | -- | 0 | -- | -- | -- | 0 | -- | 20 | 3250 | 4820 |
| MAY | | | | | | | | | | |
| 23... | -- | 10 | -- | -- | -- | 0 | -- | 10 | 3530 | 8390 |
| JUN | | | | | | | | | | |
| 20... | -- | 0 | -- | -- | -- | 0 | -- | 20 | 215 | 5.3 |
| JUL | | | | | | | | | | |
| 25... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | | |
| 21... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| SEP | | | | | | | | | | |
| 27... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

## 09413800 VIRGIN RIVER AT THE NARROWS NEAR LITTLEFIELD, AZ

LOCATION.--Lat 36°55'17", long 113°51'35", SW¼ sec.30, T.41 N., R.14 W., Mohave County, Hydrologic Unit 15010010, at The Narrows, 4.4 mi (7.1 km) downstream from Sullivans Canyon, 5.3 mi (8.5 km) upstream from Beaver Dam Wash and 6.3 mi (10.1 km) upstream from Littlefield.

PERIOD OF RECORD.--September 1977 to current year.

WATER QUALITY DATA

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | TUR-BID-ITY (JTU) | OXYGEN, DIS-SOLVED (MG/L) | COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) | STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SEP , 1977 | | | | | | | | | | | |
| 20... | 1200 | 16 | 3550 | 8.0 | 26.0 | 2 | 7.2 | -- | -- | 1600 | 1400 |
| OCT | | | | | | | | | | | |
| 19... | 0930 | 19 | 3700 | 7.3 | 20.0 | 310 | 7.6 | -- | -- | 1500 | 1200 |
| NOV | | | | | | | | | | | |
| 09... | 0930 | 56 | 3000 | 7.3 | 7.0 | 1300 | 11.4 | K1000 | 2300 | 950 | 680 |
| DEC | | | | | | | | | | | |
| 13... | 1000 | 46 | 3050 | 7.6 | 8.5 | 550 | 11.0 | K500 | K21000 | 1100 | 850 |
| JAN , 1978 | | | | | | | | | | | |
| 24... | 1230 | 138 | 2100 | 8.0 | 5.0 | 420 | 7.8 | -- | -- | 800 | 550 |
| FEB | | | | | | | | | | | |
| 14... | 0945 | 215 | 1640 | 8.1 | 8.0 | 700 | 11.7 | -- | -- | 560 | 390 |
| MAR | | | | | | | | | | | |
| 29... | 1130 | 610 | 1260 | 8.2 | 16.0 | 1300 | 13.0 | -- | -- | 510 | 330 |
| APR | | | | | | | | | | | |
| 26... | 0845 | 585 | 1020 | 7.9 | 13.5 | 260 | 10.2 | 1000 | 4600 | 340 | 190 |
| MAY | | | | | | | | | | | |
| 24... | 1000 | 485 | 960 | 8.1 | 13.0 | 320 | 8.1 | K710 | K3500 | 350 | 180 |
| JUN | | | | | | | | | | | |
| 21... | 1530 | 20 | 3800 | 7.8 | 27.5 | 0 | 6.9 | K15 | K1400 | 1600 | 1300 |
| JUL | | | | | | | | | | | |
| 26... | 1030 | 18 | 3400 | 8.0 | 27.0 | 110 | -- | K870 | K1200 | 1500 | 1200 |
| AUG | | | | | | | | | | | |
| 23... | 1030 | 17 | 3400 | 8.3 | 24.5 | 1 | -- | K160 | K700 | 1600 | 1300 |
| SEP | | | | | | | | | | | |
| 26... | 1600 | 19 | 3380 | 8.2 | 27.5 | 1 | -- | 600 | -- | 1600 | 1300 |

| DATE | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | BICAR-BONATE (MG/L AS HCO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SEP , 1977 | | | | | | | | | | | |
| 20... | 410 | 140 | 250 | 2.7 | 34 | 290 | 1300 | 430 | 1.0 | 17 | 2870 |
| OCT | | | | | | | | | | | |
| 19... | 420 | 120 | 330 | 3.7 | 32 | 360 | 1200 | 470 | 1.0 | 18 | 2970 |
| NOV | | | | | | | | | | | |
| 09... | 230 | 90 | 350 | 5.0 | 25 | 320 | 800 | 450 | .7 | 18 | 2200 |
| DEC | | | | | | | | | | | |
| 13... | 280 | 92 | 310 | 4.1 | 27 | 280 | 860 | 420 | .7 | 17 | 2200 |
| JAN , 1978 | | | | | | | | | | | |
| 24... | 210 | 67 | 230 | 3.5 | 18 | 310 | 590 | 320 | .6 | 16 | 1620 |
| FEB | | | | | | | | | | | |
| 14... | 160 | 39 | 130 | 2.4 | 11 | 210 | 410 | 170 | .4 | 13 | 1090 |
| MAR | | | | | | | | | | | |
| 29... | 140 | 40 | 100 | 1.9 | 8.3 | 220 | 330 | 120 | .3 | 14 | 873 |
| APR | | | | | | | | | | | |
| 26... | 86 | 31 | 79 | 1.9 | 7.5 | 180 | 220 | 100 | .2 | 6.7 | 671 |
| MAY | | | | | | | | | | | |
| 24... | 99 | 26 | 75 | 1.7 | 7.4 | 210 | 200 | 100 | .3 | 12 | 633 |
| JUN | | | | | | | | | | | |
| 21... | 420 | 130 | 270 | 3.0 | 33 | 300 | 1200 | 430 | 1.0 | 17 | 2740 |
| JUL | | | | | | | | | | | |
| 26... | 410 | 120 | 260 | 2.9 | 30 | 340 | 1200 | 400 | 1.0 | 15 | 2590 |
| AUG | | | | | | | | | | | |
| 23... | 430 | 120 | 280 | 3.1 | 32 | 330 | 1300 | 410 | 1.0 | 16 | 2850 |
| SEP | | | | | | | | | | | |
| 26... | 430 | 130 | 280 | 3.0 | 34 | 350 | 1300 | 420 | 1.0 | 16 | 2820 |

K Based on non-ideal colony count.

09413800 VIRGIN RIVER AT THE NARROWS NEAR LITTLEFIELD, AZ--Continued

WATER QUALITY DATA

| DATE | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER AC-FT) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO-GEN, TOTAL (MG/L AS N) | PHOS-PHORUS, TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | ARSENIC DIS-SOLVED (UG/L AS AS) | BARIUM, DIS-SOLVED (UG/L AS BA) | CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) | CADMIUM DIS-SOLVED (UG/L AS CD) |
|---|---|---|---|---|---|---|---|---|---|---|
| SEP , 1977 | | | | | | | | | | |
| 20... | 2730 | 3.90 | .17 | .25 | .02 | 7 | 4 | 300 | 10 | -- |
| OCT | | | | | | | | | | |
| 19... | 2770 | 4.04 | -- | -- | -- | -- | 3 | 400 | -- | -- |
| NOV | | | | | | | | | | |
| 09... | 2120 | 2.99 | -- | -- | -- | -- | 7 | 100 | -- | -- |
| DEC | | | | | | | | | | |
| 13... | 2150 | 2.99 | -- | -- | -- | -- | 7 | 100 | -- | -- |
| JAN , 1978 | | | | | | | | | | |
| 24... | 1610 | 2.20 | -- | -- | -- | -- | 8 | 200 | -- | -- |
| FEB | | | | | | | | | | |
| 14... | 1040 | 1.48 | -- | -- | -- | -- | 6 | 100 | -- | -- |
| MAR | | | | | | | | | | |
| 29... | 861 | 1.19 | .41 | 2.6 | .99 | 9 | 4 | 100 | 1 | 0 |
| APR | | | | | | | | | | |
| 26... | 620 | .91 | -- | -- | -- | -- | 4 | 100 | -- | -- |
| MAY | | | | | | | | | | |
| 24... | 624 | .86 | -- | -- | -- | -- | 4 | 200 | -- | -- |
| JUN | | | | | | | | | | |
| 21... | 2650 | 3.73 | -- | -- | -- | -- | 7 | 50 | -- | -- |
| JUL | | | | | | | | | | |
| 26... | 2610 | 3.52 | -- | -- | -- | -- | 6 | 0 | -- | -- |
| AUG | | | | | | | | | | |
| 23... | 2750 | 3.88 | -- | -- | -- | -- | 5 | 0 | -- | -- |
| SEP | | | | | | | | | | |
| 26... | 2780 | 3.84 | .11 | .31 | .01 | -- | 4 | 0 | 1 | 1 |

| DATE | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) | CHRO-MIUM, DIS-SOLVED (UG/L AS CR) | COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) | COBALT, DIS-SOLVED (UG/L AS CO) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) | COPPER, DIS-SOLVED (UG/L AS CU) | IRON, TOTAL RECOV-ERABLE (UG/L AS FE) | IRON, DIS-SOLVED (UG/L AS FE) | LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) | LEAD, DIS-SOLVED (UG/L AS PB) |
|---|---|---|---|---|---|---|---|---|---|---|
| SEP , 1977 | | | | | | | | | | |
| 20... | 10 | -- | 50 | -- | 10 | 0 | 260 | 50 | 100 | 2 |
| OCT | | | | | | | | | | |
| 19... | -- | -- | -- | -- | -- | 0 | -- | 10 | -- | 0 |
| NOV | | | | | | | | | | |
| 09... | -- | -- | -- | -- | -- | 2 | -- | 100 | -- | 11 |
| DEC | | | | | | | | | | |
| 13... | -- | -- | -- | -- | -- | 2 | -- | 40 | -- | 4 |
| JAN , 1978 | | | | | | | | | | |
| 24... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | | | | | |
| 14... | -- | -- | -- | -- | -- | 2 | -- | 40 | -- | 46 |
| MAR | | | | | | | | | | |
| 29... | 40 | 0 | 10 | 1 | 48 | 2 | 28000 | 40 | 24 | 0 |
| APR | | | | | | | | | | |
| 26... | -- | -- | -- | -- | -- | 0 | -- | 20 | -- | 0 |
| MAY | | | | | | | | | | |
| 24... | -- | -- | -- | -- | -- | 9 | -- | 30 | -- | 0 |
| JUN | | | | | | | | | | |
| 21... | -- | -- | -- | -- | -- | 2 | -- | 20 | -- | 0 |
| JUL | | | | | | | | | | |
| 26... | -- | -- | -- | -- | -- | 3 | -- | 20 | -- | 0 |
| AUG | | | | | | | | | | |
| 23... | -- | -- | -- | -- | -- | 4 | -- | 70 | -- | -- |
| SEP | | | | | | | | | | |
| 26... | 10 | 0 | 0 | 1 | 4 | 2 | 320 | 20 | 17 | 3 |

09413800 VIRGIN RIVER AT THE NARROWS NEAR LITTLEFIELD, AZ--Continued

WATER QUALITY DATA

| DATE | MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) | MANGANESE, DISSOLVED (UG/L AS MN) | MERCURY TOTAL RECOVERABLE (UG/L AS HG) | MERCURY DISSOLVED (UG/L AS HG) | SELENIUM, TOTAL (UG/L AS SE) | SELENIUM, DISSOLVED (UG/L AS SE) | ZINC, TOTAL RECOVERABLE (UG/L AS ZN) | ZINC, DISSOLVED (UG/L AS ZN) | SEDIMENT, SUSPENDED (MG/L) | SEDIMENT DISCHARGE, SUSPENDED (T/DAY) |
|---|---|---|---|---|---|---|---|---|---|---|
| SEP , 1977 | | | | | | | | | | |
| 20... | 100 | 50 | .0 | .0 | 0 | 0 | 30 | 10 | -- | -- |
| OCT | | | | | | | | | | |
| 19... | -- | 90 | -- | -- | -- | 1 | -- | 10 | 624 | 32 |
| NOV | | | | | | | | | | |
| 09... | -- | 400 | -- | -- | -- | 3 | -- | 60 | 4740 | 717 |
| DEC | | | | | | | | | | |
| 13... | -- | 40 | -- | -- | -- | 1 | -- | 20 | 2620 | 325 |
| JAN , 1978 | | | | | | | | | | |
| 24... | -- | -- | -- | -- | -- | -- | -- | -- | 3950 | 1470 |
| FEB | | | | | | | | | | |
| 14... | -- | 80 | -- | -- | -- | 0 | -- | 20 | -- | -- |
| MAR | | | | | | | | | | |
| 29... | 1100 | 20 | .0 | .0 | 1 | 0 | -- | 10 | 7410 | 12200 |
| APR | | | | | | | | | | |
| 26... | -- | 0 | -- | -- | -- | 0 | -- | 30 | -- | -- |
| MAY | | | | | | | | | | |
| 24... | -- | 10 | -- | -- | -- | 0 | -- | 10 | -- | -- |
| JUN | | | | | | | | | | |
| 21... | -- | 90 | -- | -- | -- | 0 | -- | 30 | 7 | .38 |
| JUL | | | | | | | | | | |
| 26... | -- | 190 | -- | -- | -- | 1 | -- | 50 | 284 | 14 |
| AUG | | | | | | | | | | |
| 23... | -- | 50 | -- | -- | -- | 1 | -- | 60 | -- | -- |
| SEP | | | | | | | | | | |
| 26... | 40 | 20 | -- | .0 | -- | 2 | 40 | 50 | 31 | 1.6 |

## 09415000 VIRGIN RIVER AT LITTLEFIELD, AZ

LOCATION.--Lat 36°53'30", long 113°55'25", in SW¼SW¼ sec.4, T.40 N., R.15 W., Mohave County, Hydrologic Unit 15010010, on right bank 5.0 mi (0.8 km) downstream from Beaver Dam Wash, 0.4 mi (0.6 km) upstream from Littlefield, and 36 mi (58 km) upstream from waterline of Lake Mead at elevation 1,221 ft (372.2 m) National Geodetic Vertical Datum of 1929.

DRAINAGE AREA.--5,090 $mi^2$ (13,200 $km^2$), approximately.

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1929 to current year.

REVISED RECORDS.--WSP 959: 1932. WSP 979: 1930-31, 1933-37. WSP 1313: 1940 (M).

GAGE.--Water-stage recorder. Datum of gage is 1,763.68 ft (537.570 m) National Geodetic Vertical Datum of 1929. Prior to May 28, 1933, nonrecording gage at same site and May 28, 1933, to Nov. 7, 1939, at site 300 ft (90 m) downstream, both at datum 2.53 ft (0.771 m) higher. Nov. 8, 1939, to Mar. 31, 1942, nonrecording gage at site 300 ft (90 m) downstream at datum 2.00 ft (0.610 m) higher. Apr. 1, 1942, to Sept. 30, 1970, water-stage recorder at site 300 ft (90 m) downstream at same datum.

REMARKS.--Records poor. Diversion above station for irrigation of about 23,200 acres (93.9 $km^2$).

AVERAGE DISCHARGE.--49 years, 223 $ft^3/s$ (6.315 $m^3/s$), 161,600 acre-ft/yr (199 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 35,200 $ft^3/s$ (997 $m^3/s$) Dec. 6, 1966, gage height, 15.66 ft (4.773 m), site then in use, from rating curve extended above 1,500 $ft^3/s$ (42.5 $m^3/s$) on basis of slope-area measurement of peak flow; minimum, 38 $ft^3/s$ (1.08 $m^3/s$) May 1, 10, 1975.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*) and peak discharges above base of 3,000 $ft^3/s$ (85 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|
| Feb. 10 | 0430 | 11,160 | 316 | 12.80 | 3.901 |
| Mar. 2 | 2200 | *22,000† | 623 | 13.60 | 4.145 |
| Mar. 5 | 0100 | 9,400 | 266 | 11.20 | 3.414 |
| Mar. 22 | 1000 | 5,000 | 142 | 10.13 | 3.088 |
| Apr. 1 | 1600 | 6,000 | 170 | 10.35 | 3.155 |

Minimum daily, 52 $ft^3/s$ (1.47 $m^3/s$) Aug. 25-27.
† About.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 58 | 89 | 112 | 228 | 145 | 1060 | 3550 | 498 | 195 | 63 | 59 | 59 |
| 2 | 59 | 91 | 107 | 176 | 145 | 7210 | 2000 | 473 | 170 | 63 | 59 | 61 |
| 3 | 61 | 89 | 105 | 170 | 139 | 13300 | 1650 | 473 | 150 | 63 | 61 | 61 |
| 4 | 63 | 89 | 105 | 170 | 136 | 2970 | 1060 | 508 | 130 | 64 | 61 | 63 |
| 5 | 64 | 83 | 128 | 173 | 131 | 7720 | 1030 | 458 | 120 | 64 | 61 | 64 |
| 6 | 64 | 103 | 103 | 176 | 139 | 3180 | 693 | 478 | 110 | 64 | 64 | 68 |
| 7 | 64 | 100 | 115 | 496 | 448 | 1400 | 687 | 513 | 100 | 64 | 64 | 66 |
| 8 | 63 | 103 | 123 | 224 | 439 | 782 | 645 | 510 | 92 | 66 | 61 | 64 |
| 9 | 63 | 107 | 133 | 170 | 317 | 611 | 651 | 520 | 86 | 66 | 61 | 63 |
| 10 | 66 | 110 | 110 | 190 | 3550 | 539 | 628 | 520 | 82 | 66 | 61 | 59 |
| 11 | 64 | 112 | 112 | 288 | 740 | 566 | 706 | 510 | 78 | 66 | 59 | 59 |
| 12 | 64 | 115 | 120 | 232 | 510 | 957 | 712 | 500 | 75 | 68 | 191 | 59 |
| 13 | 66 | 112 | 105 | 183 | 430 | 681 | 699 | 480 | 72 | 70 | 123 | 59 |
| 14 | 68 | 112 | 94 | 163 | 350 | 483 | 616 | 470 | 70 | 73 | 60 | 63 |
| 15 | 68 | 105 | 89 | 473 | 283 | 420 | 657 | 470 | 68 | 75 | 58 | 63 |
| 16 | 66 | 107 | 98 | 865 | 256 | 410 | 620 | 470 | 66 | 71 | 58 | 61 |
| 17 | 71 | 100 | 89 | 524 | 256 | 400 | 620 | 480 | 65 | 70 | 58 | 61 |
| 18 | 75 | 100 | 98 | 347 | 248 | 380 | 610 | 480 | 64 | 68 | 56 | 63 |
| 19 | 66 | 96 | 154 | 257 | 220 | 400 | 610 | 490 | 63 | 66 | 56 | 63 |
| 20 | 71 | 100 | 110 | 283 | 212 | 463 | 620 | 510 | 63 | 66 | 56 | 61 |
| 21 | 77 | 107 | 117 | 257 | 220 | 402 | 640 | 540 | 63 | 64 | 54 | 61 |
| 22 | 105 | 103 | 128 | 183 | 220 | 1900 | 680 | 570 | 63 | 66 | 54 | 61 |
| 23 | 91 | 112 | 133 | 176 | 204 | 904 | 730 | 600 | 63 | 66 | 53 | 59 |
| 24 | 91 | 112 | 125 | 180 | 236 | 634 | 770 | 605 | 63 | 66 | 53 | 59 |
| 25 | 81 | 125 | 125 | 160 | 194 | 550 | 769 | 518 | 64 | 66 | 52 | 59 |
| 26 | 79 | 112 | 125 | 151 | 201 | 630 | 688 | 508 | 63 | 73 | 52 | 59 |
| 27 | 73 | 112 | 120 | 151 | 261 | 663 | 483 | 450 | 63 | 59 | 52 | 59 |
| 28 | 73 | 128 | 183 | 154 | 224 | 756 | 545 | 380 | 63 | 64 | 55 | 59 |
| 29 | 81 | 103 | 216 | 148 | --- | 828 | 550 | 320 | 63 | 59 | 56 | 59 |
| 30 | 77 | 110 | 216 | 142 | --- | 815 | 488 | 270 | 63 | 59 | 56 | 59 |
| 31 | 87 | --- | 197 | 145 | --- | 972 | --- | 230 | --- | 58 | 59 | --- |
| TOTAL | 2219 | 3147 | 3895 | 7635 | 10854 | 52986 | 25407 | 14802 | 2550 | 2036 | 1983 | 1834 |
| MEAN | 71.6 | 105 | 126 | 246 | 388 | 1709 | 847 | 477 | 85.0 | 65.7 | 64.0 | 61.1 |
| MAX | 105 | 128 | 216 | 865 | 3550 | 13300 | 3550 | 605 | 195 | 75 | 191 | 68 |
| MIN | 58 | 83 | 89 | 142 | 131 | 380 | 483 | 230 | 63 | 58 | 52 | 59 |
| AC-FT | 4400 | 6240 | 7730 | 15140 | 21530 | 105100 | 50390 | 29360 | 5060 | 4040 | 3930 | 3640 |

CAL YR 1977 TOTAL 36844 MEAN 101 MAX 1590 MIN 51 AC-FT 73080
WTR YR 1978 TOTAL 129348 MEAN 354 MAX 13300 MIN 52 AC-FT 256600

09415000 VIRGIN RIVER AT LITTLEFIELD, AZ--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1947 to current year.

PERIOD OF DAILY RECORD.--
CHEMICAL ANALYSES: July 1949 to September 1969, once-daily (composited); October 1969 to current year, monthly.
SPECIFIC CONDUCTANCE: October 1947 to current year, once-daily.
WATER TEMPERATURES: October 1947 to current year, once-daily.
MICROBIOLOGICAL DATA: November 1977 to current year, monthly.
SUSPENDED-SEDIMENT DATA: October 1947 to September 1968, once-daily, September 1977 to current year, monthly.

REMARKS.--Streamflow is not completely homogenous chemically from bank to bank. Flow adjacent to north bank is generally somewhat more dilute than average; monthly data collected during June 1975-September 1976 indicate that specific conductance off north bank was 93 to 100 percent of stream-wide average (range of discharge, 60-230 $ft^3/s$). This doubtless affects specific conductance of daily samples, which are collected off north bank. Water temperature characteristically shows little or no variation from bank to bank. Much of day-to-day fluctuation in water temperature prior to August 1975 was due to measurement at different times of day (rather than at about the same time each day). Detailed sampling information for period since June 1975 is available from U.S. Geological Survey office, Carson City, Nevada.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 4,650 micromhos Aug. 21, 1966; minimum, 685 micromhos May 12, 1973.
WATER TEMPERATURES: Maximum, 33.5°C July 7, 1953; minimum, 2.0°C Jan. 4, 1949, Jan. 4, 1950, Jan. 4, 5, 1971.
SUSPENDED-SEDIMENT CONCENTRATIONS: Maximum, 247,000 mg/L Aug. 14, 1964; minimum, 40 mg/L June 16, 20, 1962.

EXTREMES FOR CURRENT YEAR (MEASUREMENTS AT LEAST ONCE-DAILY).--
SPECIFIC CONDUCTANCE: Maximum, 3,990 micromhos Aug. 1; minimum, 805 micromhos May 15.
WATER TEMPERATURES: Maximum, 32.0°C Aug. 3-5; minimum, 9.0°C Jan. 16.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | TUR-BID-ITY (JTU) | OXYGEN, DIS-SOLVED (MG/L) | COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 19... | 1130 | 64 | 3400 | 7.7 | 19.5 | 290 | 9.0 | -- |
| 27... | 1030 | 79 | 3480 | 8.0 | 18.5 | -- | -- | -- |
| NOV | | | | | | | | |
| 09... | 1120 | 106 | 3200 | 7.8 | 15.0 | 700 | 9.7 | K1300 |
| 23... | 1000 | 73 | 3250 | 8.2 | 13.0 | -- | -- | -- |
| DEC | | | | | | | | |
| 13... | 1100 | 95 | 3150 | 7.9 | 14.0 | 270 | 9.5 | K500 |
| 29... | 1100 | 179 | 2740 | 8.1 | 14.0 | -- | -- | -- |
| JAN | | | | | | | | |
| 25... | 1400 | 164 | 2650 | 7.9 | 12.0 | 280 | 13.0 | -- |
| FEB | | | | | | | | |
| 13... | 1345 | 410 | 1880 | 8.1 | 10.0 | 900 | 10.4 | -- |
| MAR | | | | | | | | |
| 29... | 1330 | 952 | 1460 | 8.1 | 18.0 | 1400 | 11.7 | -- |
| APR | | | | | | | | |
| 26... | 1000 | 747 | 1370 | 8.0 | 16.0 | 310 | 9.0 | K1000 |
| MAY | | | | | | | | |
| 24... | 1230 | 619 | 1150 | 8.0 | 16.0 | 300 | 8.2 | 880 |
| JUN | | | | | | | | |
| 21... | 1015 | 63 | 3300 | 8.0 | 25.0 | 35 | 7.9 | K30 |
| JUL | | | | | | | | |
| 26... | 1715 | 59 | 3190 | 8.0 | 30.0 | 75 | -- | 260 |
| AUG | | | | | | | | |
| 23... | 1300 | 54 | 3200 | 8.4 | 28.0 | 20 | -- | K40 |
| SEP | | | | | | | | |
| 28... | 1430 | 59 | 3530 | 8.2 | 28.0 | -- | -- | K180 |

K Based on non-ideal colony count.

09415000 VIRGIN RIVER AT LITTLEFIELD, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) | HARDNESS (MG/L AS CACO3) | HARDNESS, NONCARBONATE (MG/L CACO3) | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) | SODIUM ADSORPTION RATIO | POTASSIUM, DISSOLVED (MG/L AS K) | BICARBONATE (MG/L AS HCO3) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 19... | -- | 1500 | 1300 | 390 | 120 | 290 | 3.3 | 30 | 250 |
| 27... | -- | 1300 | 1100 | 350 | 110 | 300 | 3.6 | 30 | 330 |
| NOV | | | | | | | | | |
| 09... | 2900 | 1200 | 920 | 320 | 100 | 310 | 3.9 | 27 | 360 |
| 23... | -- | 1200 | 920 | 300 | 110 | 330 | 4.1 | 28 | 350 |
| DEC | | | | | | | | | |
| 13... | 7200 | 1200 | 960 | 320 | 100 | 290 | 3.6 | 29 | 310 |
| 29... | -- | 960 | 670 | 250 | 81 | 260 | 3.7 | 26 | 350 |
| JAN | | | | | | | | | |
| 25... | -- | 1000 | 730 | 270 | 82 | 250 | 3.4 | 24 | 350 |
| FEB | | | | | | | | | |
| 13... | -- | 670 | 480 | 190 | 48 | 140 | 2.4 | 12 | 230 |
| MAR | | | | | | | | | |
| 29... | -- | 570 | 360 | 150 | 47 | 110 | 2.0 | 11 | 250 |
| APR | | | | | | | | | |
| 26... | 4000 | 460 | 330 | 120 | 38 | 90 | 1.8 | 11 | 160 |
| MAY | | | | | | | | | |
| 24... | 1400 | 440 | 250 | 120 | 33 | 96 | 2.0 | 9.2 | 230 |
| JUN | | | | | | | | | |
| 21... | K300 | 1400 | 1200 | 380 | 120 | 290 | 3.3 | 33 | 240 |
| JUL | | | | | | | | | |
| 26... | 1000 | 1400 | 1200 | 370 | 120 | 280 | 3.2 | 33 | 270 |
| AUG | | | | | | | | | |
| 23... | K250 | 1400 | 1300 | 380 | 120 | 280 | 3.2 | 32 | 150 |
| SEP | | | | | | | | | |
| 28... | -- | 1500 | 1300 | 390 | 120 | 290 | 3.3 | 32 | 250 |

| DATE | CARBONATE (MG/L AS CO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | SOLIDS, DISSOLVED (TONS PER AC-FT) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 19... | 0 | 1100 | 420 | 1.0 | 20 | 2740 | 2500 | 3.73 |
| 27... | 0 | 1100 | 440 | -- | 19 | -- | 2510 | 3.41 |
| NOV | | | | | | | | |
| 09... | 0 | 960 | 420 | .8 | 19 | 2410 | 2340 | 3.28 |
| 23... | 0 | 970 | 440 | -- | 19 | -- | 2370 | 3.22 |
| DEC | | | | | | | | |
| 13... | 0 | 930 | 400 | .9 | 17 | 2320 | 2240 | 3.16 |
| 29... | 0 | 720 | 340 | -- | 17 | -- | 1870 | 2.54 |
| JAN | | | | | | | | |
| 25... | 0 | 710 | 360 | .5 | 12 | -- | 1880 | 3.18 |
| FEB | | | | | | | | |
| 13... | 0 | 520 | 180 | .2 | 12 | 1270 | 1220 | 1.73 |
| MAR | | | | | | | | |
| 29... | 0 | 390 | 130 | .4 | 14 | 971 | 976 | 1.32 |
| APR | | | | | | | | |
| 26... | 0 | 310 | 130 | .2 | 12 | 766 | 791 | 1.04 |
| MAY | | | | | | | | |
| 24... | 0 | 260 | 120 | .3 | 21 | 789 | 774 | 1.07 |
| JUN | | | | | | | | |
| 21... | 0 | 1100 | 410 | 1.0 | 19 | 2550 | 2470 | 3.47 |
| JUL | | | | | | | | |
| 26... | 0 | 1200 | 410 | 1.1 | 18 | 2660 | 2570 | 3.62 |
| AUG | | | | | | | | |
| 23... | 0 | 1300 | 400 | 1.0 | 18 | 2690 | 2610 | 3.66 |
| SEP | | | | | | | | |
| 28... | 0 | 1200 | 410 | 1.1 | 19 | 2750 | 2590 | 3.74 |

K Based on non-ideal colony count.

09415000 VIRGIN RIVER AT LITTLEFIELD, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | NITROGEN, NITRATE DISSOLVED (MG/L AS N) | NITROGEN, NITRITE DISSOLVED (MG/L AS N) | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | NITROGEN, TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | PHOSPHORUS, DISSOLVED (MG/L AS P) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 27... | .34 | .01 | -- | .35 | -- | -- | -- | .03 |
| JAN | | | | | | | | |
| 25... | .42 | .01 | -- | .43 | -- | -- | -- | .03 |
| MAR | | | | | | | | |
| 29... | -- | -- | .37 | -- | 1.6 | 2.0 | 1.9 | -- |
| APR | | | | | | | | |
| 26... | .12 | .00 | -- | .12 | -- | -- | -- | .01 |
| JUL | | | | | | | | |
| 26... | .24 | .02 | -- | .26 | -- | -- | -- | .01 |
| SEP | | | | | | | | |
| 28... | .25 | .01 | .14 | .26 | .18 | .32 | .01 | .01 |

| DATE | ARSENIC TOTAL (UG/L AS AS) | ARSENIC DISSOLVED (UG/L AS AS) | BARIUM, DISSOLVED (UG/L AS BA) | BORON, DISSOLVED (UG/L AS B) | CADMIUM TOTAL RECOVERABLE (UG/L AS CD) | CADMIUM DISSOLVED (UG/L AS CD) | CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) | CHROMIUM, DISSOLVED (UG/L AS CR) | COBALT, TOTAL RECOVERABLE (UG/L AS CO) | COBALT, DISSOLVED (UG/L AS CO) | COPPER, TOTAL RECOVERABLE (UG/L AS CU) | COPPER, DISSOLVED (UG/L AS CU) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 19... | -- | 4 | 400 | 1100 | -- | -- | -- | -- | -- | -- | -- | 1 |
| NOV | | | | | | | | | | | | |
| 09... | -- | 7 | 100 | 950 | -- | -- | -- | -- | -- | -- | -- | 1 |
| DEC | | | | | | | | | | | | |
| 13... | -- | 7 | 100 | 930 | -- | -- | -- | -- | -- | -- | -- | 1 |
| JAN | | | | | | | | | | | | |
| 25... | -- | 8 | 200 | 710 | -- | -- | -- | -- | -- | -- | -- | 5 |
| FEB | | | | | | | | | | | | |
| 13... | -- | 6 | 300 | 300 | -- | -- | -- | -- | -- | -- | -- | 2 |
| MAR | | | | | | | | | | | | |
| 29... | 11 | 5 | 100 | 310 | 2 | 0 | 20 | 0 | 10 | 1 | 47 | 0 |
| APR | | | | | | | | | | | | |
| 26... | -- | 4 | 100 | 250 | -- | -- | -- | -- | -- | -- | -- | 0 |
| MAY | | | | | | | | | | | | |
| 24... | -- | 4 | 300 | 260 | -- | -- | -- | -- | -- | -- | -- | -- |
| JUN | | | | | | | | | | | | |
| 21... | -- | 7 | 200 | 1100 | -- | -- | -- | -- | -- | -- | -- | 2 |
| JUL | | | | | | | | | | | | |
| 26... | -- | 8 | 0 | 1100 | -- | -- | -- | -- | -- | -- | -- | 3 |
| AUG | | | | | | | | | | | | |
| 23... | -- | 7 | 0 | 1100 | -- | -- | -- | -- | -- | -- | -- | 8 |
| SEP | | | | | | | | | | | | |
| 28... | 7 | 8 | 0 | 1300 | -- | -- | 0 | 0 | 0 | 0 | 10 | 1 |

| DATE | IRON, TOTAL RECOVERABLE (UG/L AS FE) | IRON, DISSOLVED (UG/L AS FE) | LEAD, TOTAL RECOVERABLE (UG/L AS PB) | LEAD, DISSOLVED (UG/L AS PB) | MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) | MANGANESE, DISSOLVED (UG/L AS MN) | MERCURY TOTAL RECOVERABLE (UG/L AS HG) | MERCURY DISSOLVED (UG/L AS HG) | SELENIUM, TOTAL (UG/L AS SE) | SELENIUM, DISSOLVED (UG/L AS SE) | ZINC, TOTAL RECOVERABLE (UG/L AS ZN) | ZINC, DISSOLVED (UG/L AS ZN) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 19... | -- | 20 | -- | 6 | -- | 30 | -- | -- | -- | 1 | -- | 10 |
| NOV | | | | | | | | | | | | |
| 09... | -- | 40 | -- | 5 | -- | 10 | -- | -- | -- | 2 | -- | 30 |
| DEC | | | | | | | | | | | | |
| 13... | -- | 40 | -- | 7 | -- | 20 | -- | -- | -- | 1 | -- | 20 |
| JAN | | | | | | | | | | | | |
| 25... | -- | 50 | -- | -- | -- | 60 | -- | -- | -- | 2 | -- | 30 |
| FEB | | | | | | | | | | | | |
| 13... | -- | -- | -- | 2 | -- | 60 | -- | -- | -- | 2 | -- | 30 |
| MAR | | | | | | | | | | | | |
| 29... | 26000 | 50 | 40 | 1 | 1100 | 30 | .0 | .0 | 2 | 1 | 140 | 10 |
| APR | | | | | | | | | | | | |
| 26... | -- | 10 | -- | 0 | -- | 10 | -- | -- | -- | 0 | -- | 30 |
| MAY | | | | | | | | | | | | |
| 24... | -- | 40 | -- | 2 | -- | 0 | -- | -- | -- | 0 | -- | 10 |
| JUN | | | | | | | | | | | | |
| 21... | -- | 10 | -- | 1 | -- | 40 | -- | -- | -- | 0 | -- | 20 |
| JUL | | | | | | | | | | | | |
| 26... | -- | 20 | -- | 0 | -- | 50 | -- | -- | -- | 1 | -- | 20 |
| AUG | | | | | | | | | | | | |
| 23... | -- | 50 | -- | 0 | -- | 20 | -- | -- | -- | 1 | -- | 20 |
| SEP | | | | | | | | | | | | |
| 28... | 150 | 20 | -- | -- | 50 | 20 | .0 | .0 | 2 | 2 | 50 | 30 |

09415000 VIRGIN RIVER AT LITTLEFIELD, AZ--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 3310 | 3360 | 3220 | 2890 | 2630 | 2330 | 1030 | 985 | 1690 | 3250 | 3990 | 3340 |
| 2 | 3380 | 3320 | 3180 | 2880 | 2690 | 1270 | 1030 | 1030 | 1670 | 3270 | 3590 | 3350 |
| 3 | 3350 | 3330 | 3300 | 2890 | 2680 | 1150 | 1050 | 853 | 1720 | 3300 | 3560 | 3350 |
| 4 | 3380 | 3470 | 3260 | 2880 | 2630 | 1120 | 1230 | 861 | 1800 | 3350 | 3500 | 3440 |
| 5 | 3400 | 3600 | 3160 | 2850 | 2650 | 1100 | 1300 | 917 | 1820 | 3310 | 3520 | 3440 |
| 6 | 3370 | 3400 | 3100 | 1780 | 1530 | 1290 | 1300 | 1140 | 1800 | 3240 | 3520 | 3490 |
| 7 | 3390 | 3330 | 3160 | 1180 | 1750 | 1490 | 1300 | 1400 | 1960 | 3320 | 3360 | 3490 |
| 8 | 3320 | 3230 | 3030 | 2480 | 2090 | 1710 | 1300 | 1390 | 2000 | 3390 | 3530 | 3400 |
| 9 | 3390 | 3150 | 3000 | 2760 | 868 | 1810 | 1390 | 1440 | 2170 | 3290 | 3370 | 3410 |
| 10 | 3420 | 3060 | 3140 | 2660 | 1790 | 1560 | 1330 | 1250 | 2250 | 3420 | 3440 | 3450 |
| 11 | 3310 | 3150 | 3150 | 2530 | 1780 | 1560 | 1470 | 1050 | 2700 | 3310 | 3380 | 3460 |
| 12 | 3410 | 3200 | 3120 | 2530 | 1780 | 1560 | 1460 | 990 | 2740 | 3330 | 3380 | 3460 |
| 13 | 3420 | 3120 | 3180 | 2520 | 1790 | 1620 | 1450 | 925 | 2740 | 3290 | 3400 | 3440 |
| 14 | 3430 | 3150 | 3300 | 1600 | 1880 | 2210 | 1260 | 839 | 2700 | 3310 | 3450 | 3350 |
| 15 | 3400 | 3250 | 3340 | 1600 | 2330 | 2210 | 1280 | 805 | 2900 | 3310 | 3470 | 3430 |
| 16 | 3410 | 3250 | 3320 | 1600 | 2360 | 2190 | 1260 | 892 | 2940 | 3340 | 3380 | 3440 |
| 17 | 3450 | 3220 | 3260 | 1570 | 2460 | 2240 | 1580 | 1060 | 2860 | 3400 | 3500 | 3370 |
| 18 | 3280 | 3130 | 3300 | 2080 | 2560 | 2210 | 1530 | 1220 | 3450 | 3390 | 3450 | 3350 |
| 19 | 3310 | 3160 | 3070 | 2340 | 2600 | 2190 | 1550 | 1210 | 2940 | 3430 | 3350 | 3370 |
| 20 | 3430 | 3160 | 2970 | 2260 | 2530 | 1700 | 1540 | 1190 | 3390 | 3400 | 3360 | 3410 |
| 21 | 3310 | 3180 | 3140 | 2370 | 2540 | 1820 | 1450 | 1190 | 3390 | 3400 | 3500 | 3410 |
| 22 | 3310 | 3190 | 3200 | 2560 | 2460 | 1040 | 1460 | 1160 | 3390 | 3330 | 3500 | 3400 |
| 23 | 3320 | 3250 | 3060 | 2570 | 2500 | 1220 | 1560 | 1180 | 3330 | 3400 | 3520 | 3370 |
| 24 | 3300 | 3300 | 3030 | 2590 | 2520 | 1520 | 1430 | 1160 | 3450 | 3400 | 3520 | 3380 |
| 25 | 3420 | 3210 | 3030 | 2890 | 2530 | 1600 | 1300 | 1380 | 3330 | 3460 | 3470 | 3400 |
| 26 | 3410 | 3170 | 3080 | 2880 | 2500 | 1630 | 1210 | 1380 | 3390 | 3390 | 3480 | 3400 |
| 27 | 3460 | 3160 | 3110 | 2810 | 2560 | 1610 | 971 | 1520 | 3500 | 3380 | 3470 | 3460 |
| 28 | 3430 | 3200 | 2720 | 2680 | 2600 | 1580 | 967 | 1480 | 3450 | 3030 | 3470 | 3450 |
| 29 | 3440 | 3270 | 2630 | 2690 | --- | 1430 | 1010 | 1460 | 3500 | 3400 | 3480 | 3460 |
| 30 | 3390 | 3270 | 2560 | 2700 | --- | 1390 | 1010 | 1520 | 3500 | 3430 | 3520 | 3470 |
| 31 | 3420 | --- | 2920 | 2670 | --- | 1350 | --- | 1500 | --- | 3440 | 3520 | --- |
| MEAN | 3380 | 3240 | 3100 | 2430 | 2270 | 1640 | 1300 | 1170 | 2750 | 3350 | 3480 | 3410 |

WTR YR 1978 MEAN 2630 MAX 3990 MIN 805

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 24.5 | 19.0 | 15.5 | 15.0 | 15.0 | 15.0 | 14.0 | 17.0 | 23.0 | 26.0 | 30.0 | 28.0 |
| 2 | 24.5 | 19.0 | 16.0 | 15.0 | 15.5 | 15.0 | 14.0 | 19.0 | 23.0 | 26.0 | 31.0 | 29.0 |
| 3 | 26.0 | 20.0 | 17.0 | 15.0 | 16.0 | 17.0 | 15.5 | 17.0 | 24.0 | 26.0 | 32.0 | 29.0 |
| 4 | 25.0 | 19.0 | 17.5 | 15.0 | 14.5 | 14.0 | 15.0 | 17.0 | 26.0 | 28.0 | 32.0 | 28.0 |
| 5 | 24.5 | 18.0 | 17.0 | 15.0 | 15.0 | 11.0 | 14.0 | 15.0 | 25.0 | 29.0 | 32.0 | 28.0 |
| 6 | 24.0 | 17.5 | 17.0 | 11.5 | 15.0 | 12.5 | 14.0 | 15.0 | 26.5 | 30.0 | 30.0 | 26.0 |
| 7 | 25.5 | 18.0 | 16.0 | 11.5 | 13.0 | 13.0 | 13.0 | 20.0 | 27.0 | 27.5 | 30.0 | 25.5 |
| 8 | 24.5 | 15.0 | 15.5 | 13.0 | 14.5 | 13.5 | 12.0 | 20.0 | 28.0 | 29.0 | 31.0 | 26.5 |
| 9 | 25.0 | 15.0 | 13.0 | 12.5 | 14.0 | 13.5 | 13.5 | 21.5 | 25.5 | 28.5 | 31.5 | 26.0 |
| 10 | 25.0 | 16.0 | 14.5 | 13.0 | 10.0 | 14.0 | 17.0 | 21.0 | 23.0 | 27.0 | 31.0 | 25.0 |
| 11 | 22.5 | 17.0 | 16.0 | 14.0 | 11.0 | 13.0 | 19.5 | 20.5 | 24.0 | 27.0 | 30.0 | 26.5 |
| 12 | 22.5 | 18.0 | 16.0 | 15.0 | 11.0 | 12.5 | 20.0 | 22.0 | 24.0 | 27.5 | 29.0 | 26.0 |
| 13 | 23.5 | 17.5 | 15.5 | 14.5 | 11.5 | 11.0 | 19.0 | 22.0 | 25.5 | 29.0 | 27.0 | 25.0 |
| 14 | 24.5 | 18.0 | 17.0 | 14.0 | 13.0 | 14.0 | 18.0 | 22.0 | 25.5 | 29.0 | 29.0 | 26.0 |
| 15 | 25.0 | 18.5 | 16.5 | 11.0 | 12.0 | 15.0 | 18.5 | 20.0 | 25.0 | 31.0 | 29.0 | 27.5 |
| 16 | 24.0 | 18.0 | 16.5 | 9.0 | 12.0 | 17.0 | 17.0 | 18.0 | 27.0 | 29.0 | 25.0 | 25.0 |
| 17 | 24.0 | 19.0 | 15.5 | 10.5 | 12.0 | 19.0 | 16.5 | 19.0 | 28.0 | 28.0 | 25.0 | 24.0 |
| 18 | 23.5 | 18.0 | 16.5 | 12.0 | 13.0 | 20.0 | 17.0 | 22.5 | 25.0 | 28.5 | 25.0 | 24.0 |
| 19 | 21.5 | 14.0 | 12.0 | 13.0 | 14.0 | 21.0 | 18.0 | 21.5 | 28.0 | 28.0 | 26.5 | 22.0 |
| 20 | 23.5 | 12.5 | 12.0 | 13.5 | 15.0 | 21.0 | 18.0 | 22.0 | 28.0 | 28.0 | 27.5 | 23.5 |
| 21 | 22.5 | 13.0 | 14.5 | 13.0 | 15.0 | 17.0 | 17.5 | 22.0 | 28.0 | 30.0 | 27.0 | 25.0 |
| 22 | 22.5 | 15.0 | 14.5 | 13.0 | 15.0 | 13.5 | 17.5 | 21.5 | 28.5 | 29.5 | 25.0 | 25.5 |
| 23 | 21.0 | 15.5 | 15.0 | 11.0 | 16.0 | 17.0 | 19.0 | 20.0 | 25.0 | 30.5 | 24.5 | 26.0 |
| 24 | 21.5 | 16.5 | 15.0 | 10.0 | 15.5 | 17.5 | 19.0 | 19.5 | 25.0 | 30.0 | 25.5 | 26.0 |
| 25 | 21.0 | 17.0 | 14.0 | 13.0 | 16.0 | 17.0 | 17.0 | 20.0 | 28.0 | 31.0 | 26.0 | 27.0 |
| 26 | 21.0 | 16.5 | 14.0 | 13.0 | 16.0 | 18.0 | 19.0 | 20.5 | 26.0 | 30.0 | 26.0 | 25.5 |
| 27 | 21.5 | 16.0 | 17.0 | 13.0 | 16.0 | 19.0 | 19.0 | 22.0 | 27.0 | 31.5 | 28.0 | 26.0 |
| 28 | 21.5 | 15.5 | 13.5 | 16.0 | 16.0 | 20.0 | 19.5 | 23.5 | 25.5 | 26.0 | 28.0 | 26.5 |
| 29 | 20.0 | 16.5 | 14.5 | 16.0 | --- | 19.5 | 19.0 | 24.5 | 28.0 | 31.0 | 28.5 | 26.5 |
| 30 | 20.0 | 16.5 | 15.0 | 14.5 | --- | 17.5 | 17.0 | 25.0 | 26.0 | 30.0 | 26.0 | 26.0 |
| 31 | 20.0 | --- | 16.0 | 16.0 | --- | 16.5 | --- | 23.5 | --- | 28.5 | 26.0 | --- |
| MEAN | 23.0 | 17.0 | 15.5 | 13.5 | 14.0 | 16.0 | 17.0 | 20.5 | 26.0 | 28.5 | 28.0 | 26.0 |

WTR YR 1978 MEAN 20.5 MAX 32.0 MIN 9.0

09415000 VIRGIN RIVER AT LITTLEFIELD, AZ--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | CARBON, ORGANIC TOTAL (MG/L AS C) | PHYTO-PLANK-TON, TOTAL (CELLS PER ML) | SEDI-MENT, SUS-PENDED (MG/L) | SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) |
|---|---|---|---|---|
| OCT | | | | |
| 19... | -- | 1700 | 668 | 117 |
| NOV | | | | |
| 09... | -- | -- | 2680 | 767 |
| DEC | | | | |
| 15... | -- | -- | 1510 | 591 |
| JAN | | | | |
| 25... | -- | -- | 2170 | 961 |
| MAR | | | | |
| 29... | 39 | 140 | 6110 | 15700 |
| APR | | | | |
| 26... | -- | -- | 3420 | 6900 |
| MAY | | | | |
| 24... | -- | -- | 3970 | 6640 |
| JUN | | | | |
| 21... | -- | -- | 256 | 44 |
| JUL | | | | |
| 26... | -- | -- | 310 | 50 |
| AUG | | | | |
| 23... | -- | -- | 97 | 14 |
| SEP | | | | |
| 28... | 2.4 | -- | 93 | 15 |

09415000 VIRGIN RIVER AT LITTLEFIELD, AZ--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

PHYTOPLANKTON

| DATE | OCT 19,77 | MAR 29,78 |
|---|---|---|
| TIME | 1130 | 1330 |
| TOTAL CELLS/ML | 1700 | 140 |
| DIVERSITY: DIVISION | 0.4 | 0.7 |
| .CLASS | 0.5 | 0.7 |
| ..ORDER | 0.9 | 0.7 |
| ...FAMILY | 1.9 | 2.4 |
| ....GENUS | 2.2 | 2.4 |

| ORGANISM | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT |
|---|---|---|---|---|
| CHLOROPHYTA (GREEN ALGAE) | | | | |
| .CHLOROPHYCEAE | | | | |
| ..CHLOROCOCCALES | | | | |
| ...OOCYSTACEAE | | | | |
| ....CHLORELLA | 54 | 3 | -- | - |
| ..VOLVOCALES | | | | |
| ...CHLAMYDOMONADACEAE | | | | |
| ....CHLAMYDOMONAS | -- | - | 29# | 20 |
| ..ZYGNEMATALES | | | | |
| ...DESMIDIACEAE | | | | |
| ....CLOSTERIUM | 27 | 2 | -- | - |
| CHRYSOPHYTA | | | | |
| .BACILLARIOPHYCEAE | | | | |
| ..PENNALES | | | | |
| ...NAVICULACEAE | | | | |
| ....ENTOMONEIS | 27 | 2 | -- | - |
| ..CENTRALES | | | | |
| ...COSCINODISCACEAE | | | | |
| ....CYCLOTELLA | 110 | 6 | -- | - |
| ..PENNALES | | | | |
| ...CYMBELLACEAE | | | | |
| ....CYMBELLA | 54 | 3 | -- | - |
| ....EPITHEMIA | -- | - | 29# | 20 |
| ...DIATOMACEAE | | | | |
| ....DIATOMA | -- | - | 43# | 30 |
| ...NAVICULACEAE | | | | |
| ....NAVICULA | 560# | 34 | 14 | 10 |
| ....NEIDIUM | 81 | 5 | -- | - |
| ...NITZSCHIACEAE | | | | |
| ....NITZSCHIA | 700# | 42 | 14 | 10 |
| ...SURIRELLACEAE | | | | |
| ....SURIRELLA | -- | - | 14 | 10 |
| .CHRYSOPHYCEAE | | | | |
| ..CHRYSOMONADALES | | | | |
| ...CHROMULINACEAE | | | | |
| ....CHRYSOCOCCUS | 27 | 2 | -- | - |
| CYANOPHYTA (BLUE-GREEN ALGAE) | | | | |
| .CYANOPHYCEAE | | | | |
| ..CHROCCOCCALES | | | | |
| ...CHROCCOCCAEAE | | | | |
| ....ANACYSTIS | 27 | 2 | -- | - |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

## 09415230 VIRGIN RIVER ABOVE HALFWAY WASH NEAR RIVERSIDE, NV

LOCATION.--Lat 36°40'10", long 114°18'10", in SE¼SW¼ sec.32, T.14 S., R.69 E., Clark County, Hydrologic Unit 15010010, on left bank, 0.8 mi (1.3 km) upstream from Halfway Wash and 6.5 mi (10.5 km) southeast of Riverside.

DRAINAGE AREA.--5,980 $mi^2$ (15,490 $km^2$), approximately.

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1977 to September 1978.

GAGE.--Water-stage recorder. Altitude of gage is 1,320 ft (402 m), from topographic map.

REMARKS.--Records poor. Diversion above station for irrigation.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 16,000 $ft^3/s$ (453 $m^3/s$) Mar. 5, 1978, gage height, 6.60 ft (2.012 m); no flow June 29 to July 25, Aug. 1 to Sept. 13, 19, 1978.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 48 | 60 | 89 | 191 | 158 | 242 | 1600 | 370 | 200 | .00 | .00 | .00 |
| 2 | 48 | 60 | 89 | 163 | 155 | 3530 | 1000 | 360 | 170 | .00 | .00 | .00 |
| 3 | 48 | 61 | 90 | 179 | 150 | 3070 | 900 | 380 | 140 | .00 | .00 | .00 |
| 4 | 49 | 62 | 91 | 163 | 150 | 3530 | 780 | 390 | 120 | .00 | .00 | .00 |
| 5 | 50 | 63 | 92 | 197 | 148 | 4210 | 660 | 370 | 110 | .00 | .00 | .00 |
| 6 | 51 | 64 | 92 | 216 | 148 | 2500 | 600 | 380 | 85 | .00 | .00 | .00 |
| 7 | 51 | 66 | 92 | 244 | 200 | 1400 | 580 | 400 | 70 | .00 | .00 | .00 |
| 8 | 52 | 68 | 92 | 158 | 300 | 800 | 560 | 400 | 60 | .00 | .00 | .00 |
| 9 | 52 | 70 | 92 | 179 | 476 | 632 | 550 | 400 | 50 | .00 | .00 | .00 |
| 10 | 52 | 72 | 94 | 259 | 2210 | 617 | 540 | 390 | 43 | .00 | .00 | .00 |
| 11 | 53 | 76 | 95 | 292 | 1670 | 603 | 530 | 400 | 36 | .00 | .00 | .00 |
| 12 | 53 | 79 | 96 | 292 | 600 | 855 | 520 | 400 | 31 | .00 | .00 | .00 |
| 13 | 54 | 81 | 97 | 283 | 460 | 855 | 520 | 410 | 25 | .00 | .00 | .00 |
| 14 | 54 | 85 | 98 | 267 | 510 | 737 | 520 | 410 | 20 | .00 | .00 | 20 |
| 15 | 54 | 92 | 99 | 530 | 460 | 603 | 510 | 420 | 18 | .00 | .00 | 47 |
| 16 | 54 | 98 | 100 | 348 | 370 | 512 | 500 | 420 | 14 | .00 | .00 | 3.2 |
| 17 | 54 | 98 | 102 | 452 | 300 | 442 | 500 | 430 | 11 | .00 | .00 | 8.2 |
| 18 | 54 | 98 | 104 | 358 | 280 | 476 | 500 | 440 | 9.0 | .00 | .00 | 1.3 |
| 19 | 55 | 98 | 104 | 330 | 260 | 537 | 500 | 450 | 7.5 | .00 | .00 | .00 |
| 20 | 56 | 97 | 105 | 310 | 250 | 675 | 500 | 460 | 6.0 | .00 | .00 | 1.3 |
| 21 | 58 | 93 | 106 | 270 | 240 | 488 | 490 | 470 | 4.5 | .00 | .00 | 11 |
| 22 | 60 | 91 | 108 | 250 | 240 | 1410 | 490 | 480 | 3.5 | .00 | .00 | 9.1 |
| 23 | 68 | 88 | 110 | 225 | 240 | 737 | 480 | 490 | 3.0 | .00 | .00 | 9.1 |
| 24 | 70 | 88 | 115 | 210 | 240 | 540 | 480 | 500 | 2.5 | .00 | .00 | 14 |
| 25 | 66 | 88 | 126 | 200 | 230 | 490 | 470 | 510 | 2.0 | .00 | .00 | 7.4 |
| 26 | 64 | 88 | 126 | 190 | 230 | 510 | 460 | 440 | 1.4 | 4.7 | .00 | 11 |
| 27 | 60 | 88 | 110 | 180 | 230 | 540 | 350 | 400 | .90 | .14 | .00 | 5.4 |
| 28 | 60 | 88 | 100 | 165 | 230 | 560 | 380 | 360 | .40 | .20 | .00 | 7.4 |
| 29 | 60 | 88 | 174 | 165 | --- | 600 | 400 | 320 | .00 | 13 | .00 | 15 |
| 30 | 60 | 88 | 191 | 162 | --- | 680 | 370 | 280 | .00 | 5.4 | .00 | 16 |
| 31 | 60 | --- | 168 | 160 | --- | 800 | --- | 230 | --- | .08 | .00 | --- |
| TOTAL | 1728 | 2436 | 3347 | 7588 | 11135 | 34181 | 17240 | 12560 | 1243.70 | 23.52 | .00 | 186.40 |
| MEAN | 55.7 | 81.2 | 108 | 245 | 398 | 1103 | 575 | 405 | 41.5 | .76 | .000 | 6.21 |
| MAX | 70 | 98 | 191 | 530 | 2210 | 4210 | 1600 | 510 | 200 | 13 | .00 | 47 |
| MIN | 48 | 60 | 89 | 158 | 148 | 242 | 350 | 230 | .00 | .00 | .00 | .00 |
| AC-FT | 3430 | 4830 | 6640 | 15050 | 22090 | 67800 | 34200 | 24910 | 2470 | 47 | .00 | 370 |

WTR YR 1978 TOTAL 91668.62 MEAN 251 MAX 4210 MIN .00 AC-FT 181800

## 09415230 VIRGIN RIVER ABOVE HALFWAY WASH NEAR RIVERSIDE, NV

### WATER-QUALITY RECORDS

PERIOD OF RECORD.--December 1977 to current year.
CHEMICAL ANALYSES, MICROBIOLOGICAL DATA, AND SEDIMENT DATA: January to September 1978, monthly.
SPECIFIC CONDUCTANCES AND WATER TEMPERATURES: December 1977 to April 1978, monthly; May to September 1978, once-daily.
BIOLOGICAL DATA: March to September 1978, monthly (seasonal).

REMARKS.--Daily specific-conductance and temperature data are collected approximately 5 mi (8 km) upstream, in NE¼SE¼ sec.12, T.14 S., R.69 E. Stream channel at both sampling sites was dry or almost dry during part of year.

EXTREMES MEASURED FOR PERIOD OF RECORD.--
SPECIFIC CONDUCTANCES: Maximum, 5,260 micromhos Sept. 16, 1978; minimum, 1,080 micromhos May 14, 1978.
PHYTOPLANKTON: Maximum, 2,500 cells/mL June 22, 1978; minimum, 27 cells/mL Mar. 30, 1978.
FECAL STREPTOCOCCI: Maximum, 7,200 colonies/100 mL Mar. 30, 1978; minimum, 750 colonies/100 mL (non-ideal colony count) June 22, 1978.
WATER TEMPERATURES: Maximum, 34.0°C June 20, July 30, 1978; minimum, 10.0°C Jan. 26, 1978.
SUSPENDED-SEDIMENT CONCENTRATIONS: Maximum, 3,600 mg/L Feb. 14, 1978; minimum, 166 mg/L Sept. 27, 1978.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | TUR-BID-ITY (JTU) | TUR-BID-ITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) | COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) | COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) |
|---|---|---|---|---|---|---|---|---|---|---|
| JAN 26... | 1330 | 185 | 3130 | 8.3 | 10.0 | 350 | -- | 13.0 | K200 | -- |
| FEB 14... | 1430 | 509 | 2260 | 8.2 | 14.0 | 900 | -- | 7.8 | K200 | -- |
| MAR 30... | 0930 | 642 | 1650 | 8.3 | 18.0 | 950 | -- | 11.7 | 4800 | -- |
| APR 24... | 1300 | 487 | 1680 | 8.5 | 22.0 | 420 | -- | 8.8 | -- | 260 |
| MAY 25... | 1300 | 560 | 1380 | 8.3 | 20.5 | -- | 260 | 7.7 | -- | 310 |
| JUN 22... | 1015 | 3.8 | 4250 | 8.2 | 26.5 | -- | 110 | -- | -- | 440 |
| JUL 27... | -- | .00 | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG 24... | -- | .00 | -- | -- | -- | -- | -- | -- | -- | -- |
| SEP 27... | 1320 | 11 | 5020 | 8.3 | 29.5 | -- | 40 | -- | -- | K1200 |

| DATE | STREP-TOCOCCI FECAL, (COLS. PER 100 ML) | STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) | HARD-NESS (MG/L AS CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY (MG/L AS CACO3) | SULFATE DIS-SOLVED (MG/L AS SO4) |
|---|---|---|---|---|---|---|---|---|---|---|
| JAN 26... | 5500 | -- | 1200 | 280 | 110 | 290 | 3.7 | 26 | 240 | 930 |
| FEB 14... | 4800 | -- | 760 | 240 | 65 | 200 | 3.2 | 14 | 200 | 650 |
| MAR 30... | 7200 | -- | 600 | 160 | 48 | 120 | 2.1 | 13 | 200 | 440 |
| APR 24... | -- | 1100 | 640 | 170 | 53 | 140 | 2.4 | 13 | 200 | 460 |
| MAY 25... | -- | 1800 | 500 | 130 | 43 | 110 | 2.1 | 10 | 170 | 340 |
| JUN 22... | -- | K750 | 1500 | 350 | 160 | 440 | 4.9 | 38 | 150 | 1600 |
| JUL 27... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG 24... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| SEP 27... | -- | -- | 1700 | 370 | 200 | 510 | 5.3 | 50 | 150 | 1700 |

K Based on non-ideal colony count.

09415230 VIRGIN RIVER ABOVE HALFWAY WASH NEAR RIVERSIDE, NV--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | CHLORIDE, DIS-SOLVED (MG/L AS CL) | FLUORIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER AC-FT) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) |
|---|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | | |
| 26... | 400 | .6 | 19 | 2270 | 2200 | 3.09 | -- | -- | .26 | .10 |
| FEB | | | | | | | | | | |
| 14... | 240 | .4 | 14 | 1670 | 1520 | 2.27 | -- | -- | .37 | .09 |
| MAR | | | | | | | | | | |
| 30... | 150 | .4 | 15 | 1110 | 1060 | 1.51 | -- | -- | .32 | .05 |
| APR | | | | | | | | | | |
| 24... | 190 | .5 | 15 | 1150 | 1160 | 1.56 | .31 | .01 | .32 | .03 |
| MAY | | | | | | | | | | |
| 25... | 140 | .3 | 13 | 858 | 889 | 1.17 | .52 | .00 | .52 | .10 |
| JUN | | | | | | | | | | |
| 22... | 610 | .9 | 21 | 3550 | 3310 | 4.83 | .01 | .00 | .01 | .01 |
| JUL | | | | | | | | | | |
| 27... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | | |
| 24... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| SEP | | | | | | | | | | |
| 27... | 740 | .9 | 23 | 4070 | 3680 | 5.54 | .01 | .00 | .01 | .01 |

| DATE | NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) | NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N) | NITRO-GEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | NITRO-GEN, TOTAL (MG/L AS N) | PHOS-PHORUS, TOTAL (MG/L AS P) | PHOS-PHORUS, DIS-SOLVED (MG/L AS P) | CARBON, ORGANIC TOTAL (MG/L AS C) | CARBON, ORGANIC DIS-SOLVED (MG/L AS C) | CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) |
|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | |
| 26... | -- | -- | .77 | 1.0 | .64 | .01 | -- | -- | -- |
| FEB | | | | | | | | | |
| 14... | -- | -- | 1.1 | 1.5 | 1.4 | .02 | 31 | -- | -- |
| MAR | | | | | | | | | |
| 30... | -- | -- | 1.5 | 1.8 | .99 | .02 | -- | -- | -- |
| APR | | | | | | | | | |
| 24... | -- | -- | .82 | 1.1 | .14 | .01 | 12 | -- | -- |
| MAY | | | | | | | | | |
| 25... | -- | -- | -- | -- | .53 | .03 | 18 | -- | -- |
| JUN | | | | | | | | | |
| 22... | -- | -- | .66 | .67 | .08 | .00 | -- | 17 | 2.7 |
| JUL | | | | | | | | | |
| 27... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | |
| 24... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| SEP | | | | | | | | | |
| 27... | .01 | .38 | .40 | .41 | .05 | .01 | 6.2 | -- | -- |

09415230 VIRGIN RIVER ABOVE HALFWAY WASH NEAR RIVERSIDE, NV--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | ARSENIC TOTAL (UG/L AS AS) | ARSENIC DIS-SOLVED (UG/L AS AS) | BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) | BARIUM, DIS-SOLVED (UG/L AS BA) | CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) | CADMIUM DIS-SOLVED (UG/L AS CD) | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) | CHRO-MIUM, DIS-SOLVED (UG/L AS CR) |
|---|---|---|---|---|---|---|---|---|---|
| MAR | | | | | | | | | |
| 30... | 0930 | 11 | 5 | 400 | 100 | <10 | 0 | 20 | 0 |
| JUN | | | | | | | | | |
| 22... | 1015 | 3 | 4 | 300 | 200 | -- | -- | 20 | 0 |
| SEP | | | | | | | | | |
| 27... | 1320 | 6 | 6 | 0 | 0 | -- | -- | 10 | 10 |

| DATE | COBALT, TOTAL RECOV-ERABLE (UG/L AS CU) | COBALT, DIS-SOLVED (UG/L AS CO) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) | COPPER, DIS-SOLVED (UG/L AS CU) | IRON, TOTAL RECOV-ERABLE (UG/L AS FE) | IRON, DIS-SOLVED (UG/L AS FE) | LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) | LEAD, DIS-SOLVED (UG/L AS PB) | MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) |
|---|---|---|---|---|---|---|---|---|---|
| MAR | | | | | | | | | |
| 30... | 10 | 0 | 40 | 0 | 23000 | 40 | 30 | 1 | 800 |
| JUN | | | | | | | | | |
| 22... | 1 | 1 | 9 | 9 | 1600 | 70 | -- | -- | 150 |
| SEP | | | | | | | | | |
| 27... | 0 | 1 | 6 | 3 | 980 | 80 | -- | -- | 60 |

| DATE | MANGA-NESE, DIS-SOLVED (UG/L AS MN) | MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) | MERCURY DIS-SOLVED (UG/L AS HG) | SELE-NIUM, TOTAL (UG/L AS SE) | SELE-NIUM, DIS-SOLVED (UG/L AS SE) | SILVER, TOTAL RECOV-ERABLE (UG/L AS AG) | SILVER, DIS-SOLVED (UG/L AS AG) | ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) | ZINC, DIS-SOLVED (UG/L AS ZN) |
|---|---|---|---|---|---|---|---|---|---|
| MAR | | | | | | | | | |
| 30... | 20 | -- | -- | 1 | 1 | 0 | 0 | 100 | 10 |
| JUN | | | | | | | | | |
| 22... | 20 | .0 | .0 | 0 | 0 | 0 | 0 | 20 | 30 |
| SEP | | | | | | | | | |
| 27... | 10 | .1 | .0 | 0 | 1 | 0 | 0 | 40 | 30 |

< Actual value is known to be less than value shown.

09415230 VIRGIN RIVER ABOVE HALFWAY WASH NEAR RIVERSIDE, NV--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SEDI-MENT, SUS-PENDED (MG/L) | SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) | SED. SUSP. FALL DIAM. % FINER THAN .002 MM | SED. SUSP. FALL DIAM. % FINER THAN .004 MM | SED. SUSP. FALL DIAM. % FINER THAN .008 MM |
|---|---|---|---|---|---|---|---|
| JAN | | | | | | | |
| 26... | 1330 | 185 | 3210 | 1600 | 11 | 13 | 13 |
| FEB | | | | | | | |
| 14... | 1430 | 509 | 3600 | 4950 | -- | -- | -- |
| MAR | | | | | | | |
| 30... | 0930 | 642 | 3500 | 6070 | -- | -- | -- |
| APR | | | | | | | |
| 24... | 1300 | 487 | 2680 | 3520 | 10 | 13 | 17 |
| MAY | | | | | | | |
| 25... | 1300 | 560 | 1970 | 2980 | 12 | 17 | 22 |
| JUN | | | | | | | |
| 22... | 1015 | 3.8 | 322 | 3.4 | -- | -- | -- |
| JUL | | | | | | | |
| 27... | -- | .00 | -- | -- | -- | -- | -- |
| AUG | | | | | | | |
| 24... | -- | .00 | -- | -- | -- | -- | -- |
| SEP | | | | | | | |
| 27... | 1320 | 11 | 166 | 4.9 | -- | -- | -- |

| DATE | SED. SUSP. FALL DIAM. % FINER THAN .016 MM | SED. SUSP. FALL DIAM. % FINER THAN .031 MM | SED. SUSP. FALL DIAM. % FINER THAN .062 MM | SED. SUSP. FALL DIAM. % FINER THAN .125 MM | SED. SUSP. FALL DIAM. % FINER THAN .250 MM | SED. SUSP. FALL DIAM. % FINER THAN .500 MM |
|---|---|---|---|---|---|---|
| JAN | | | | | | |
| 26... | 19 | 26 | 46 | 73 | 96 | 100 |
| FEB | | | | | | |
| 14... | -- | -- | -- | -- | -- | -- |
| MAR | | | | | | |
| 30... | -- | -- | -- | -- | -- | -- |
| APR | | | | | | |
| 24... | 21 | 27 | 42 | 75 | 99 | 100 |
| MAY | | | | | | |
| 25... | 26 | 31 | 45 | 77 | 99 | 100 |
| JUN | | | | | | |
| 22... | -- | -- | -- | -- | -- | -- |
| JUL | | | | | | |
| 27... | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | |
| 24... | -- | -- | -- | -- | -- | -- |
| SEP | | | | | | |
| 27... | -- | -- | -- | -- | -- | -- |

09415230 VIRGIN RIVER ABOVE HALFWAY WASH NEAR RIVERSIDE, NV--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | --- | 1610 | --- | | --- |
| 2 | | | | | | | | --- | 1690 | --- | | --- |
| 3 | | | | | | | | --- | 1670 | --- | | --- |
| 4 | | | | | | | | --- | 1940 | --- | | --- |
| 5 | | | | | | | | --- | 1940 | --- | | --- |
| 6 | | | | | | | | --- | 2080 | --- | | --- |
| 7 | | | | | | | | --- | 2190 | --- | | --- |
| 8 | | | | | | | | 1550 | 2170 | --- | | --- |
| 9 | | | | | | | | 1710 | 2340 | --- | | --- |
| 10 | | | | | | | | 1600 | 2620 | --- | | --- |
| 11 | | | | | | | | 1420 | 2520 | --- | | --- |
| 12 | | | | | | | | 1290 | 2870 | --- | | --- |
| 13 | | | | | | | | 1250 | 2910 | --- | | --- |
| 14 | | | | | | | | 1080 | 3640 | --- | | 2970 |
| 15 | | | | | | | | 1110 | 3920 | --- | | 3420 |
| 16 | | | | | | | | 1120 | 3400 | --- | | 5260 |
| 17 | | | | | | | | 1200 | 3580 | --- | | 4530 |
| 18 | | | | | | | | 1370 | 3780 | --- | | 4070 |
| 19 | | | | | | | | 1440 | 4160 | --- | | --- |
| 20 | | | | | | | | 1470 | 4310 | --- | | 4070 |
| 21 | | | | | | | | 1420 | 4670 | --- | | 4950 |
| 22 | | | | | | | | 1390 | 4170 | --- | | 4800 |
| 23 | | | | | | | | 1390 | 4860 | --- | | 4790 |
| 24 | | | | | | | | 1410 | 4840 | --- | | 4260 |
| 25 | | | | | | | | 1410 | 4740 | --- | | 4530 |
| 26 | | | | | | | | 1520 | 4510 | 4140 | | --- |
| 27 | | | | | | | | 1640 | 5060 | 4230 | | 4790 |
| 28 | | | | | | | | 1660 | --- | 5020 | | 4330 |
| 29 | | | | | | | | 1690 | --- | 3970 | | 4630 |
| 30 | | | | | | | | 1690 | --- | 4020 | | 4460 |
| 31 | | | | | | | | 1690 | --- | 4960 | | --- |
| MEAN | | | | | | | | 1440 | 3270 | 4390 | | 4590 |

WTR YR 1978 MEAN 3030 MAX 5260 MIN 1080

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | --- | 27.0 | --- | | --- |
| 2 | | | | | | | | --- | 26.0 | --- | | --- |
| 3 | | | | | | | | --- | 26.0 | --- | | --- |
| 4 | | | | | | | | --- | 30.5 | --- | | --- |
| 5 | | | | | | | | --- | 30.5 | --- | | --- |
| 6 | | | | | | | | --- | 31.5 | --- | | --- |
| 7 | | | | | | | | --- | 33.5 | --- | | --- |
| 8 | | | | | | | | 25.0 | 33.5 | --- | | --- |
| 9 | | | | | | | | 25.0 | 26.0 | --- | | --- |
| 10 | | | | | | | | 23.0 | 23.0 | --- | | --- |
| 11 | | | | | | | | 24.0 | 33.0 | --- | | --- |
| 12 | | | | | | | | 26.5 | 27.5 | --- | | --- |
| 13 | | | | | | | | 26.0 | 28.0 | --- | | --- |
| 14 | | | | | | | | --- | 24.0 | --- | | 19.0 |
| 15 | | | | | | | | 22.0 | 24.0 | --- | | 29.0 |
| 16 | | | | | | | | 21.5 | 29.0 | --- | | 28.0 |
| 17 | | | | | | | | 22.0 | 32.5 | --- | | 22.5 |
| 18 | | | | | | | | 25.0 | 26.0 | --- | | 24.5 |
| 19 | | | | | | | | 27.0 | 31.0 | --- | | --- |
| 20 | | | | | | | | 25.5 | 34.0 | --- | | 23.5 |
| 21 | | | | | | | | 25.5 | 27.0 | --- | | 25.5 |
| 22 | | | | | | | | 21.0 | 27.5 | --- | | 30.0 |
| 23 | | | | | | | | 21.0 | 24.5 | --- | | 28.5 |
| 24 | | | | | | | | 23.0 | 26.5 | --- | | 29.0 |
| 25 | | | | | | | | 23.0 | 29.0 | --- | | 31.0 |
| 26 | | | | | | | | 23.0 | 25.0 | 33.0 | | 31.0 |
| 27 | | | | | | | | 27.0 | 24.5 | 32.0 | | 28.5 |
| 28 | | | | | | | | 29.0 | --- | 28.0 | | 29.0 |
| 29 | | | | | | | | 29.5 | --- | 33.5 | | 32.0 |
| 30 | | | | | | | | 29.5 | --- | 34.0 | | 30.5 |
| 31 | | | | | | | | 29.0 | --- | 31.0 | | --- |
| MEAN | | | | | | | | 25.0 | 26.0 | 32.0 | | 27.5 |

WTR YR 1978 MEAN 27.5 MAX 34.0 MIN 19.0

09415230 VIRGIN RIVER ABOVE HALFWAY WASH NEAR RIVERSIDE, NV--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

PHYTOPLANKTON

| DATE | MAR 30,78 | | MAY 25,78 | | JUN 22,78 | | SEP 27,78 | |
|---|---|---|---|---|---|---|---|---|
| TIME | 0930 | | 1300 | | 1015 | | 1320 | |
| TOTAL CELLS/ML | 27 | | 270 | | 2500 | | 760 | |
| DIVERSITY: DIVISION | 0.0 | | 0.0 | | 1.0 | | 0.8 | |
| .CLASS | 0.0 | | 0.0 | | 1.0 | | 0.8 | |
| ..ORDER | 0.0 | | 0.0 | | 1.7 | | 0.8 | |
| ...FAMILY | 0.0 | | 1.6 | | 2.6 | | 1.9 | |
| ....GENUS | 1.0 | | 1.6 | | 2.7 | | 2.0 | |
| ORGANISM | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT |
| CHLOROPHYTA (GREEN ALGAE) | | | | | | | | |
| .CHLOROPHYCEAE | | | | | | | | |
| ..CHLOROCOCCALES | | | | | | | | |
| ...OOCYSTACEAE | | | | | | | | |
| ....DICTYOSPHAERIUM | -- | - | -- | - | 89 | 4 | -- | - |
| ....OOCYSTIS | -- | - | -- | - | 180 | 7 | -- | - |
| ...SCENEDESMACEAE | | | | | | | | |
| ....SCENEDESMUS | -- | - | -- | - | 360 | 14 | -- | - |
| ..VOLVOCALES | | | | | | | | |
| ...CHLAMYDOMONADACEAE | | | | | | | | |
| ....CHLAMYDOMONAS | -- | - | -- | - | 310 | 12 | -- | - |
| CHRYSOPHYTA | | | | | | | | |
| .BACILLARIOPHYCEAE | | | | | | | | |
| ..CENTRALES | | | | | | | | |
| ...COSCINODISCACEAE | | | | | | | | |
| ....CYCLOTELLA | -- | - | -- | - | 250 | 10 | -- | - |
| ..PENNALES | | | | | | | | |
| ...CYMBELLACEAE | | | | | | | | |
| ....CYMBELLA | -- | - | -- | - | -- | - | 15 | 2 |
| ...FRAGILARIACEAE | | | | | | | | |
| ....FRAGILARIA | -- | - | -- | - | -- | - | 44 | 6 |
| ...GOMPHONEMATACEAE | | | | | | | | |
| ....GOMPHONEMA | -- | - | 89# | 33 | 67 | 3 | -- | - |
| ...NAVICULACEAE | | | | | | | | |
| ....AMPHIPLEURA | -- | - | -- | - | -- | - | 15 | 2 |
| ....GYROSIGMA | 14# | 50 | -- | - | -- | - | -- | - |
| ....NAVICULA | 14# | 50 | 130# | 50 | 740# | 29 | 88 | 12 |
| ...NITZSCHIACEAE | | | | | | | | |
| ....NITZSCHIA | -- | - | 22 | 8 | 540# | 21 | 400# | 52 |
| ...SURIRELLACEAE | | | | | | | | |
| ....CYMATOPLEURA | -- | - | -- | - | -- | - | 29 | 4 |
| ....SURIRELLA | -- | - | 22 | 8 | -- | - | -- | - |
| CYANOPHYTA (BLUE-GREEN ALGAE) | | | | | | | | |
| .CYANOPHYCEAE | | | | | | | | |
| ..CHROCOCCALES | | | | | | | | |
| ...CHROCOCCACEAE | | | | | | | | |
| ....ANACYSTIS | -- | - | -- | - | -- | - | 180# | 23 |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%

* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

## 09419700 LAS VEGAS WASH NEAR HENDERSON, NV

LOCATION.--Lat 36°05'20", long 114°59'05", in SE¼SW¼ sec.30, T.21 S., R.63 E., Clark County, Hydrologic Unit 15010015, on right bank at upstream end of 4.5-ft (1.37-m) pipe culvert on road, 3.5 mi (5.6 km) north of Henderson, and 6.0 mi (9.7 km) upstream from high-water line of Lake Mead at elevation 1,221.4 ft (372.28 m) National Geodetic Vertical Datum of 1929.

DRAINAGE AREA.--2,125 $mi^2$ (5,504 $km^2$), of which 1,518 $mi^2$ (3,932 $km^2$) contribute directly to surface runoff. Prior to Apr. 4, 1961, 2,179 $mi^2$ (5,644 $km^2$), of which 1,571 $mi^2$ (4,069 $km^2$) contributed directly to surface runoff.

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1957 to current year.

REVISED RECORDS.--WSP 1926: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 1,540 ft (469 m), from topographic map. Prior to Apr. 4, 1961, at site 2.5 mi (4.0 km) downstream at various datums.

REMARKS.--Records fair. In closed basin above station, 2,150 acres (8.70 $km^2$) are irrigated, mostly by pumping from ground water. Discharge includes waste water from industrial plants and sewage effluent.

AVERAGE DISCHARGE.--21 years, 37.3 $ft^3/s$ (1.056 $m^3/s$), 27,020 acre-ft/yr (33.3 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,510 $ft^3/s$ (184 $m^3/s$) July 4, 1975, gage height, 10.67 ft (3.252 m), from flood-marks, from rating curve extended above 3,340 $ft^3/s$ (94.6 $m^3/s$) on basis of area-velocity computation to determine peak flow; minimum daily, 4.8 $ft^3/s$ (0.14 $m^3/s$) Aug. 17, 1960.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,260 $ft^3/s$ (35.7 $m^3/s$) Mar. 5, gage height, 8.47 ft (2.582 m); minimum, 33 $ft^3/s$ (0.93 $m^3/s$) Aug. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 64 | 57 | 61 | 90 | 81 | 114 | 83 | 98 | 58 | 53 | 49 | 66 |
| 2 | 69 | 56 | 64 | 85 | 82 | 102 | 84 | 104 | 61 | 52 | 54 | 75 |
| 3 | 71 | 56 | 65 | 89 | 83 | 84 | 82 | 72 | 63 | 57 | 60 | 63 |
| 4 | 68 | 59 | 66 | 83 | 79 | 105 | 75 | 69 | 68 | 58 | 62 | 60 |
| 5 | 65 | 62 | 70 | 84 | 85 | 534 | 72 | 67 | 69 | 58 | 57 | 68 |
| 6 | 66 | 66 | 75 | 83 | 89 | 124 | 68 | 70 | 62 | 55 | 61 | 65 |
| 7 | 66 | 64 | 77 | 81 | 87 | 91 | 64 | 73 | 64 | 57 | 88 | 67 |
| 8 | 61 | 63 | 76 | 82 | 86 | 81 | 69 | 71 | 60 | 54 | 64 | 65 |
| 9 | 64 | 66 | 74 | 80 | 87 | 79 | 84 | 71 | 60 | 62 | 59 | 64 |
| 10 | 62 | 67 | 72 | 95 | 114 | 103 | 80 | 64 | 58 | 63 | 58 | 66 |
| 11 | 63 | 68 | 78 | 95 | 120 | 115 | 76 | 63 | 58 | 56 | 62 | 73 |
| 12 | 59 | 77 | 81 | 83 | 96 | 115 | 78 | 64 | 58 | 56 | 64 | 72 |
| 13 | 59 | 73 | 75 | 83 | 116 | 97 | 80 | 62 | 59 | 55 | 63 | 66 |
| 14 | 59 | 75 | 73 | 84 | 290 | 81 | 81 | 62 | 54 | 54 | 67 | 66 |
| 15 | 58 | 71 | 72 | 125 | 112 | 75 | 82 | 62 | 54 | 56 | 66 | 75 |
| 16 | 62 | 72 | 71 | 111 | 90 | 80 | 86 | 63 | 60 | 55 | 64 | 68 |
| 17 | 64 | 72 | 72 | 102 | 91 | 80 | 82 | 63 | 62 | 58 | 66 | 71 |
| 18 | 68 | 71 | 74 | 91 | 87 | 81 | 74 | 62 | 63 | 61 | 66 | 72 |
| 19 | 68 | 73 | 71 | 87 | 89 | 86 | 72 | 62 | 61 | 60 | 62 | 70 |
| 20 | 68 | 78 | 74 | 84 | 85 | 89 | 62 | 64 | 62 | 58 | 68 | 68 |
| 21 | 70 | 79 | 73 | 82 | 72 | 84 | 64 | 60 | 61 | 59 | 69 | 66 |
| 22 | 69 | 77 | 73 | 84 | 67 | 82 | 67 | 62 | 54 | 59 | 65 | 64 |
| 23 | 69 | 74 | 75 | 82 | 72 | 74 | 65 | 64 | 50 | 58 | 71 | 62 |
| 24 | 68 | 75 | 75 | 79 | 71 | 77 | 70 | 62 | 54 | 55 | 75 | 61 |
| 25 | 63 | 75 | 76 | 80 | 64 | 76 | 74 | 60 | 60 | 55 | 67 | 59 |
| 26 | 62 | 76 | 71 | 82 | 71 | 75 | 75 | 62 | 59 | 55 | 67 | 58 |
| 27 | 60 | 73 | 76 | 84 | 77 | 73 | 73 | 61 | 57 | 54 | 74 | 57 |
| 28 | 58 | 73 | 111 | 77 | 72 | 79 | 74 | 62 | 53 | 57 | 74 | 56 |
| 29 | 57 | 71 | 218 | 81 | --- | 76 | 71 | 60 | 55 | 63 | 71 | 55 |
| 30 | 61 | 66 | 97 | 84 | --- | 74 | 73 | 58 | 55 | 63 | 68 | 54 |
| 31 | 58 | --- | 89 | 80 | --- | 78 | --- | 55 | --- | 58 | 63 | --- |
| TOTAL | 1979 | 2085 | 2475 | 2692 | 2615 | 3164 | 2240 | 2052 | 1772 | 1774 | 2024 | 1952 |
| MEAN | 63.8 | 69.5 | 79.8 | 86.8 | 93.4 | 102 | 74.7 | 66.2 | 59.1 | 57.2 | 65.3 | 65.1 |
| MAX | 71 | 79 | 218 | 125 | 290 | 534 | 86 | 104 | 69 | 63 | 88 | 75 |
| MIN | 57 | 56 | 61 | 77 | 64 | 73 | 62 | 55 | 50 | 52 | 49 | 54 |
| AC-FT | 3930 | 4140 | 4910 | 5340 | 5190 | 6280 | 4440 | 4070 | 3510 | 3520 | 4010 | 3870 |

CAL YR 1977 TOTAL 24730 MEAN 67.8 MAX 520 MIN 45 AC-FT 49050
WTR YR 1978 TOTAL 26824 MEAN 73.5 MAX 534 MIN 49 AC-FT 53210

09419700 LAS VEGAS WASH NEAR HENDERSON, NV--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--February 1957 to October 1961, September and October 1962, May 1963 to June 1965, and December 1965 to current year.
CHEMICAL ANALYSES: January 1964 to January 1965, twice-monthly; October 1967 to January 1969, weekly; February 1969 to January 1970 and July 1970 to current year, monthly.
SPECIFIC CONDUCTANCE: January 1964 to January 1965, twice-monthly; October to November 1967 and April 1968 to January 1969, weekly; February 1969 to January 1970 and July 1970 to current year, monthly.
WATER TEMPERATURES: February 1957 to October 1961, monthly; September to October 1962, May 1963 to June 1965, and December 1965 to current year, monthly.
SEDIMENT DATA: January to September 1977, monthly.

REMARKS.--Discharge includes sewage effluent and some waste water from industrial plants.

COOPERATION.--All water-quality sampling and analyses prior to July 1970, plus nutrient analyses for period July 1970 to September 1972, from U.S. Environmental Protection Agency. Data in addition to those listed under "Period of Record" for January 1964 to June 1970 may exist in files of U.S. Environmental Protection Agency.

EXTREMES MEASURED FOR PERIOD OF RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 6,960 micromhos Sept. 19, 1968; minimum, 2,160 micromhos Sept. 12, 1977.
WATER TEMPERATURES: Maximum, 28.0°C July 30, Sept. 3, 1958; minimum, 2.0°C Jan. 31, 1972.
SUSPENDED-SEDIMENT CONCENTRATIONS: Maximum, 347 mg/L July 11, 1978 (questionable value not verified by duplicate determination); minimum, 9 mg/L July 12, 1977, Feb. 16, 1978.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | HARD-NESS (MG/L AS CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 11... | 1200 | 64 | 2660 | 7.8 | 18.0 | 780 | 180 | 80 |
| NOV | | | | | | | | |
| 14... | 1230 | 69 | 2750 | -- | 13.5 | -- | -- | -- |
| DEC | | | | | | | | |
| 12... | 1000 | 84 | 2720 | -- | 11.0 | -- | -- | -- |
| FEB | | | | | | | | |
| 16... | 1045 | 86 | 2810 | -- | 11.0 | -- | -- | -- |
| MAR | | | | | | | | |
| 13... | 1100 | 91 | 2850 | -- | 14.5 | -- | -- | -- |
| APR | | | | | | | | |
| 19... | 1030 | 68 | 2860 | 8.0 | 16.5 | 850 | 190 | 92 |
| MAY | | | | | | | | |
| 15... | 1045 | 60 | 3020 | -- | 21.0 | -- | -- | -- |
| JUN | | | | | | | | |
| 13... | 0815 | 66 | -- | -- | 21.0 | -- | -- | -- |
| JUL | | | | | | | | |
| 11... | 1110 | 55 | 2690 | 7.8 | 23.0 | 800 | 180 | 85 |
| AUG | | | | | | | | |
| 14... | 1300 | 57 | 2440 | -- | 23.5 | -- | -- | -- |
| SEP | | | | | | | | |
| 11... | 1430 | 54 | 2600 | -- | 21.5 | -- | -- | -- |

| DATE | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY (MG/L AS CACO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER AC-FT) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 11... | 300 | 4.7 | 21 | 250 | 720 | 340 | 31 | 1820 | 2.48 |
| NOV | | | | | | | | | |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| DEC | | | | | | | | | |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | | | | |
| 16... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MAR | | | | | | | | | |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| APR | | | | | | | | | |
| 19... | 300 | 4.5 | 22 | 230 | 720 | 400 | 32 | 1890 | 2.57 |
| MAY | | | | | | | | | |
| 15... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUN | | | | | | | | | |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | |
| 11... | 290 | 4.5 | 21 | 260 | 690 | 360 | 30 | 1810 | 2.46 |
| AUG | | | | | | | | | |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| SEP | | | | | | | | | |
| 11... | -- | -- | -- | -- | -- | -- | -- | -- | -- |

09419700 LAS VEGAS WASH NEAR HENDERSON, NV--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | NITROGEN, NITRATE TOTAL (MG/L AS N) | NITROGEN, NITRITE TOTAL (MG/L AS N) | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN, AMMONIA TOTAL (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | NITROGEN, TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | PHOSPHORUS, DISSOLVED (MG/L AS P) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 11... | 1.1 | .23 | 1.3 | 16 | 15 | 16 | 7.5 | -- |
| NOV | | | | | | | | |
| 14... | 2.2 | .41 | 2.6 | 12 | -- | -- | 6.5 | -- |
| DEC | | | | | | | | |
| 12... | 1.7 | .21 | 1.9 | 12 | -- | -- | -- | -- |
| FEB | | | | | | | | |
| 16... | 1.7 | .33 | 2.0 | 12 | -- | -- | 2.6 | -- |
| MAR | | | | | | | | |
| 13... | 1.5 | .29 | 1.8 | 13 | -- | -- | 2.2 | -- |
| APR | | | | | | | | |
| 19... | .65 | .12 | .77 | 16 | 22 | 23 | 3.6 | 3.6 |
| MAY | | | | | | | | |
| 15... | .14 | .06 | .20 | 18 | -- | -- | 4.9 | -- |
| JUN | | | | | | | | |
| 13... | .08 | .04 | .12 | 16 | -- | -- | 8.2 | -- |
| JUL | | | | | | | | |
| 11... | .01 | .04 | .05 | 17 | 19 | 19 | 6.9 | 6.1 |
| AUG | | | | | | | | |
| 14... | .06 | .02 | .08 | 14 | -- | -- | 5.3 | -- |
| SEP | | | | | | | | |
| 11... | .06 | .03 | .09 | 15 | -- | -- | 5.9 | -- |

| DATE | TIME | STREAM-FLOW, INSTANTANEOUS (CFS) | SEDIMENT, SUSPENDED (MG/L) | SEDIMENT DISCHARGE, SUSPENDED (T/DAY) |
|---|---|---|---|---|
| OCT | | | | |
| 11... | 1200 | 64 | 27 | 4.7 |
| NOV | | | | |
| 14... | 1230 | 69 | 13 | 2.4 |
| DEC | | | | |
| 12... | 1000 | 84 | 13 | 2.9 |
| FEB | | | | |
| 16... | 1045 | 86 | 9 | 2.1 |
| MAR | | | | |
| 13... | 1100 | 91 | -- | -- |
| APR | | | | |
| 19... | 1030 | 68 | 12 | 2.2 |
| MAY | | | | |
| 15... | 1045 | 60 | 36 | 5.8 |
| JUN | | | | |
| 13... | 0815 | 66 | 16 | 2.9 |
| JUL | | | | |
| 11... | 1110 | 55 | 347 | 52 |
| AUG | | | | |
| 14... | 1300 | 57 | 17 | 2.6 |
| SEP | | | | |
| 11... | 1430 | 54 | 10 | 1.5 |

## 09419800 LAS VEGAS WASH NEAR BOULDER CITY, NV

LOCATION.--Lat 36°07'20", long 114°54'15", in NE¼SE¼ sec.14, T.21 S., R.63 E., Clark County, Hydrologic Unit 15010015, in Lake Mead National Recreation Area, on left bank near mouth, on upstream side of lake shore highway, about 0.8 mi (1.3 km) upstream from high-water line of Lake Mead at elevation 1,221.4 ft (372.28 m) National Geodetic Vertical Datum of 1929, and 11 mi (18 km) north-northwest of Boulder City.

DRAINAGE AREA.--2,193 $mi^2$ (5,680 $km^2$), of which 1,586 $mi^2$ (4,108 $km^2$) contribute directly to surface runoff.

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1969 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,280 ft (390 m), from topographic map.

REMARKS.--Records good except those for period of no gage-height record, which are poor. In closed basin above station, 2,150 acres (8.70 $km^2$) are irrigated, mostly by pumping from ground water. Discharge includes sewage effluent.

AVERAGE DISCHARGE.--9 years, 67.9 $ft^3/s$ (1.923 $m^3/s$), 49,190 acre-ft (60.7 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,430 $ft^3/s$ (688.8 $m^3/s$) July 4, 1975, gage height, 12.32 ft (3.755 m), from indirect measurement of peak flow; minimum, 14 $ft^3/s$ (0.40 $m^3/s$) July 7, 8, 1971.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 26, 1964, reached a stage of 7.5 ft (2.29 m), from floodmarks, discharge, 1,050 $ft^3/s$ (29.7 $m^3/s$), from indirect measurement of peak flow, and another flood between 1964 and 1969 reached a stage of about 10 ft (3.05 m), from floodmarks, discharge, about 1,700 $ft^3/s$ (48.1 $m^3/s$), from rating curve extended above 300 $ft^3/s$ (8.50 $m^3/s$) on basis of theoretical weir and culvert formulas.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 829 $ft^3/s$ (23.5 $m^3/s$) Mar. 5, gage height, 7.03 ft (2.143 m); minimum daily, 62 $ft^3/s$ (1.76 $m^3/s$) July 15-17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 86 | 73 | 83 | 107 | 97 | 97 | 97 | 116 | 68 | 66 | 66 | 74 |
| 2 | 88 | 73 | 81 | 101 | 97 | 121 | 99 | 150 | 71 | 65 | 66 | 82 |
| 3 | 89 | 73 | 84 | 107 | 95 | 99 | 101 | 113 | 74 | 64 | 66 | 76 |
| 4 | 88 | 74 | 84 | 99 | 95 | 111 | 99 | 90 | 79 | 64 | 66 | 74 |
| 5 | 88 | 74 | 84 | 88 | 93 | 378 | 89 | 87 | 79 | 64 | 70 | 74 |
| 6 | 84 | 76 | 91 | 89 | 91 | 290 | 84 | 82 | 76 | 64 | 80 | 73 |
| 7 | 84 | 77 | 95 | 89 | 93 | 163 | 77 | 85 | 73 | 64 | 100 | 73 |
| 8 | 79 | 77 | 99 | 89 | 97 | 121 | 76 | 84 | 72 | 65 | 74 | 73 |
| 9 | 79 | 79 | 99 | 88 | 99 | 105 | 84 | 82 | 71 | 65 | 70 | 74 |
| 10 | 77 | 83 | 97 | 89 | 109 | 103 | 93 | 76 | 70 | 66 | 69 | 76 |
| 11 | 77 | 84 | 101 | 101 | 128 | 130 | 88 | 74 | 70 | 65 | 68 | 78 |
| 12 | 77 | 89 | 105 | 95 | 121 | 118 | 88 | 73 | 70 | 64 | 68 | 78 |
| 13 | 77 | 91 | 103 | 91 | 113 | 110 | 86 | 72 | 70 | 63 | 68 | 76 |
| 14 | 79 | 86 | 101 | 91 | 186 | 100 | 84 | 72 | 70 | 63 | 68 | 78 |
| 15 | 81 | 84 | 99 | 99 | 260 | 90 | 87 | 73 | 70 | 62 | 68 | 80 |
| 16 | 83 | 83 | 97 | 123 | 118 | 84 | 90 | 74 | 70 | 62 | 68 | 78 |
| 17 | 84 | 86 | 99 | 107 | 107 | 97 | 88 | 74 | 70 | 62 | 70 | 77 |
| 18 | 83 | 88 | 99 | 107 | 109 | 97 | 84 | 73 | 70 | 65 | 70 | 76 |
| 19 | 84 | 88 | 97 | 99 | 111 | 97 | 77 | 72 | 70 | 67 | 71 | 76 |
| 20 | 84 | 89 | 99 | 99 | 105 | 103 | 73 | 76 | 72 | 68 | 72 | 76 |
| 21 | 84 | 93 | 101 | 95 | 101 | 97 | 68 | 70 | 74 | 68 | 72 | 76 |
| 22 | 84 | 95 | 99 | 95 | 89 | 95 | 71 | 72 | 74 | 68 | 74 | 78 |
| 23 | 86 | 93 | 97 | 93 | 88 | 93 | 71 | 74 | 71 | 68 | 76 | 86 |
| 24 | 86 | 93 | 97 | 93 | 86 | 91 | 70 | 72 | 66 | 70 | 77 | 96 |
| 25 | 84 | 93 | 95 | 93 | 84 | 88 | 71 | 70 | 64 | 70 | 78 | 105 |
| 26 | 84 | 93 | 95 | 95 | 81 | 93 | 71 | 73 | 67 | 69 | 80 | 90 |
| 27 | 83 | 91 | 97 | 95 | 88 | 97 | 71 | 72 | 70 | 68 | 82 | 84 |
| 28 | 79 | 89 | 113 | 97 | 88 | 95 | 71 | 71 | 70 | 68 | 82 | 82 |
| 29 | 77 | 91 | 251 | 95 | --- | 91 | 71 | 70 | 69 | 67 | 82 | 81 |
| 30 | 76 | 88 | 138 | 97 | --- | 91 | 74 | 68 | 67 | 67 | 80 | 80 |
| 31 | 79 | --- | 111 | 101 | --- | 95 | --- | 66 | --- | 66 | 75 | --- |
| TOTAL | 2553 | 2546 | 3191 | 3007 | 3029 | 3640 | 2453 | 2476 | 2127 | 2037 | 2276 | 2380 |
| MEAN | 82.4 | 84.9 | 103 | 97.0 | 108 | 117 | 81.8 | 79.9 | 70.9 | 65.7 | 73.4 | 79.3 |
| MAX | 89 | 95 | 251 | 123 | 260 | 378 | 101 | 150 | 79 | 70 | 100 | 105 |
| MIN | 76 | 73 | 81 | 88 | 81 | 84 | 68 | 66 | 64 | 62 | 66 | 73 |
| AC-FT | 5060 | 5050 | 6330 | 5960 | 6010 | 7220 | 4870 | 4910 | 4220 | 4040 | 4510 | 4720 |

CAL YR 1977 TOTAL 30824 MEAN 84.4 MAX 529 MIN 55 AC-FT 61140
WTR YR 1978 TOTAL 31715 MEAN 86.9 MAX 378 MIN 62 AC-FT 62910

NOTE.--No gage-height record May 4 to Sept. 30.

09419800 LAS VEGAS WASH NEAR BOULDER CITY, NV--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--January 1964 to January 1965, October 1967 to current year.

PERIOD OF DAILY RECORD.--
CHEMICAL ANALYSES: January 1964 to January 1965, twice-monthly; October 1967 to January 1969, weekly; February to October 1969, monthly; November 1969 to January 1970, twice-monthly; February 1970 to July 1974, monthly; August 1974 to current year, twice-monthly.
SPECIFIC CONDUCTANCE: January 1964 to January 1965, twice-monthly; October 1967 to December 1967 and May 1968 to January 1969, weekly; February to October 1969, monthly; November 1969 to January 1970, twice-monthly; February 1970 to July 1974, monthly; August 1974 to May 1975, twice-monthly; June 1975 to March 1976, 4 times per hour (incomplete record due to recorder malfunctions) and twice-monthly; April to October 1976, twice-monthly; November 1976 to September 1977, 4 times per hour (incomplete record due to recorder malfunctions) and twice-monthly; October 1977 to May 1978, 2-4 times per month; June to September 1978, 3-5 times per week.
MICROBIOLOGICAL DATA: October 1976 to current year, monthly (data prior to October 1977 unpublished).
WATER TEMPERATURES: January to December 1968, weekly; August 1969 to July 1974, monthly; August 1974 to current year, twice-monthly.
SUSPENDED-SEDIMENT DISCHARGE: January 1974 to December 1976, monthly; January 1977 to current year, twice-monthly.

INSTRUMENTATION.--Specific conductance recorder from June 1975 to March 1976 and November 1976 to April 1978.

REMARKS.--Discharge includes sewage effluent and waste water from industrial plants...continuous records of specific conductance for 1978 water year are questionable, and therefore are not published here. Recorder was removed in May 1978 prior to demolition of nearby road culvert (removal of culvert caused severe stream-channel downcutting at gage).

COOPERATION.--Microbiological analyses for entire period of record by Nevada Bureau of Laboratories and Research. All water-quality sampling and analyses to October 1969, plus nutrient and trace-metal analyses for period October 1969 to September 1972, from U.S. Environmental Protection Agency. Data in addition to that listed under "Period of Record" for January 1964 to September 1969 may exist in files of U.S. Environmental Protection Agency.

EXTREMES MEASURED FOR PERIOD OF RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 9,120 micromhos Sept. 8, 1964; minimum, 2,600 micromhos July 3, 1975.
WATER TEMPERATURES: Maximum, 26.0°C July 23, 1969, June 3, 1970; minimum, 3.0°C Jan. 7, 1970.
SUSPENDED-SEDIMENT CONCENTRATIONS: Maximum, 17,300 mg/L Feb. 10, 1976; minimum, 111 mg/L Jan. 28, 1975.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | TUR-BID-ITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) | COLI-FORM, TOTAL, IMMED. (COLS. PER 100 ML) | COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) | COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) | STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 11... | 1030 | 76 | 3420 | 8.0 | 17.0 | 110 | 10.4 | 7300 | K60 | -- | K100 |
| 31... | 1130 | 79 | 3560 | -- | 15.0 | 100 | -- | -- | -- | -- | -- |
| NOV | | | | | | | | | | | |
| 14... | 1145 | 88 | 3330 | -- | 14.0 | 95 | -- | K1600 | K100 | -- | 240 |
| 29... | 1315 | 99 | 3270 | -- | 13.0 | 150 | -- | 2300 | -- | -- | 280 |
| DEC | | | | | | | | | | | |
| 12... | 1100 | 111 | 3260 | -- | 10.0 | 260 | -- | 2500 | K50 | -- | 300 |
| 27... | 1300 | 111 | 3260 | -- | 12.5 | 210 | -- | K1000 | K60 | -- | K180 |
| JAN | | | | | | | | | | | |
| 09... | 1000 | 86 | 3050 | 8.4 | 10.0 | 210 | -- | K1500 | K60 | -- | 2500 |
| 30... | 1030 | 93 | 3330 | -- | 11.5 | 180 | -- | 500 | K60 | -- | 570 |
| FEB | | | | | | | | | | | |
| 16... | 1145 | 118 | 3750 | -- | 10.0 | 1200 | -- | >200 | K90 | -- | 2200 |
| MAR | | | | | | | | | | | |
| 13... | 0930 | E110 | 3890 | -- | 13.5 | 900 | -- | K1900 | K60 | -- | 2300 |
| 28... | 0700 | 93 | 3840 | -- | 14.5 | 240 | -- | K1100 | K30 | -- | 800 |
| APR | | | | | | | | | | | |
| 19... | 1430 | E73 | 3520 | 7.9 | 17.0 | 160 | 8.3 | -- | -- | -- | -- |
| MAY | | | | | | | | | | | |
| 01... | 1230 | 109 | 3560 | -- | 16.0 | 320 | -- | 500 | <10 | -- | K190 |
| 15... | 1400 | E78 | 3920 | -- | 21.0 | 250 | -- | K15000 | K1400 | -- | K15000 |
| 30... | 1400 | 67 | 3530 | -- | 22.0 | 56 | -- | -- | -- | -- | -- |
| JUN | | | | | | | | | | | |
| 14... | 0930 | E64 | 3500 | -- | 20.5 | 45 | -- | K1100 | K40 | -- | K1800 |
| 27... | 1200 | 70 | 3450 | -- | 21.0 | 70 | -- | K11000 | K20 | -- | 2800 |
| JUL | | | | | | | | | | | |
| 11... | 1400 | E73 | 3450 | 8.2 | 23.5 | 70 | -- | 3400 | 144 | -- | K1900 |
| 24... | 1000 | 69 | 3400 | -- | 23.0 | 55 | -- | K1600 | K110 | -- | K1700 |
| AUG | | | | | | | | | | | |
| 14... | 1300 | E68 | 2910 | -- | 23.5 | 40 | -- | -- | -- | -- | K16000 |
| 28... | 1430 | 81 | 3270 | -- | 23.0 | 80 | -- | 9000 | K168 | -- | 2000 |
| SEP | | | | | | | | | | | |
| 11... | 1330 | 77 | 3000 | -- | 21.0 | 39 | -- | -- | -- | K530 | K4800 |
| 25... | 1215 | 105 | 3050 | -- | 21.5 | 68 | -- | >1500 | K120 | -- | 2200 |

> Actual value is known to be greater than value shown.
< Actual value is known to be less than value shown.
E Estimated.
K Based on non-ideal colony count.

09419800 LAS VEGAS WASH NEAR BOULDER CITY, NV--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | HARDNESS (MG/L AS CACO3) | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) | SODIUM ADSORPTION RATIO | POTASSIUM, DISSOLVED (MG/L AS K) | ALKALINITY (MG/L AS CACO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 11... | 1100 | 280 | 100 | 340 | 4.4 | 37 | 200 | 1100 | 380 | 40 | 2620 |
| 31... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | | | | | | |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 2540 |
| 29... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| DEC | | | | | | | | | | | |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 2420 |
| 27... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JAN | | | | | | | | | | | |
| 09... | 1100 | 290 | 81 | 240 | 3.2 | 25 | 150 | 960 | 330 | 32 | 2120 |
| 30... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | | | | | | |
| 16... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 3020 |
| MAR | | | | | | | | | | | |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 3040 |
| 28... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| APR | | | | | | | | | | | |
| 19... | 1200 | 300 | 120 | 340 | 4.2 | 38 | 180 | 1000 | 470 | 39 | 2690 |
| MAY | | | | | | | | | | | |
| 01... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 15... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 2900 |
| 30... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUN | | | | | | | | | | | |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 2640 |
| 27... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | | | |
| 11... | 1200 | 280 | 110 | 340 | 4.4 | 39 | 200 | 1100 | 440 | 40 | 2500 |
| 24... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | | | |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 2510 |
| 28... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| SEP | | | | | | | | | | | |
| 11... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 2480 |
| 25... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

| DATE | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | SOLIDS, DISSOLVED (TONS PER AC-FT) | NITROGEN, NITRATE TOTAL (MG/L AS N) | NITROGEN, NITRITE TOTAL (MG/L AS N) | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN, AMMONIA TOTAL (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | NITROGEN, TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | PHOSPHORUS, DISSOLVED (MG/L AS P) | CARBON, ORGANIC TOTAL (MG/L AS C) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 11... | 2400 | 3.56 | 3.4 | .66 | 4.1 | 1.0 | 2.6 | 6.7 | 7.8 | 5.5 | 7.2 |
| 31... | -- | -- | 5.4 | .33 | 5.7 | .58 | 1.4 | 7.1 | 5.0 | -- | 6.6 |
| NOV | | | | | | | | | | | |
| 14... | -- | 3.45 | 6.6 | .45 | 7.0 | .94 | 1.7 | 8.7 | 5.8 | -- | -- |
| 29... | -- | -- | 6.4 | .72 | 7.1 | 3.2 | 4.5 | 12 | 4.5 | -- | 8.7 |
| DEC | | | | | | | | | | | |
| 12... | -- | 3.29 | 7.0 | .51 | 7.5 | 2.3 | 3.7 | 11 | 3.5 | -- | 11 |
| 27... | -- | -- | 7.8 | .49 | 8.3 | 1.2 | 2.7 | 11 | 4.8 | -- | 9.3 |
| JAN | | | | | | | | | | | |
| 09... | 2050 | 2.88 | 6.0 | .45 | 6.4 | 4.0 | 5.2 | 12 | 4.2 | 1.6 | -- |
| 30... | -- | -- | 5.8 | .57 | 6.4 | 3.4 | 4.5 | 11 | 3.9 | -- | 8.7 |
| FEB | | | | | | | | | | | |
| 16... | -- | 4.11 | 6.0 | .14 | 6.1 | .55 | 1.4 | 7.5 | 2.8 | -- | 38 |
| MAR | | | | | | | | | | | |
| 13... | -- | 4.13 | 5.0 | .28 | 5.3 | 2.6 | 5.0 | 10 | 3.8 | -- | 3.7 |
| 28... | -- | -- | 4.6 | .43 | 5.0 | 2.4 | 4.0 | 9.0 | 2.9 | -- | 13 |
| APR | | | | | | | | | | | |
| 19... | 2420 | E3.66 | 4.3 | .48 | 4.8 | 2.6 | 3.7 | 8.5 | 3.0 | 2.5 | 8.9 |
| MAY | | | | | | | | | | | |
| 01... | -- | -- | 2.9 | .41 | 3.3 | 3.9 | 4.6 | 7.9 | -- | -- | 12 |
| 15... | -- | E3.94 | 2.9 | .68 | 3.6 | 3.3 | 5.1 | 8.7 | 4.0 | -- | 41 |
| 30... | -- | -- | 2.7 | .90 | 3.6 | 3.1 | 5.3 | 8.9 | 2.5 | -- | 9.0 |
| JUN | | | | | | | | | | | |
| 14... | -- | E3.59 | 2.7 | .91 | 3.6 | 6.0 | 8.1 | 12 | 3.7 | -- | 8.3 |
| 27... | -- | -- | 8.4 | .01 | 8.4 | .04 | 1.5 | 9.9 | 3.6 | -- | 9.8 |
| JUL | | | | | | | | | | | |
| 11... | 2470 | E3.40 | 2.6 | 1.4 | 4.0 | 4.4 | 6.9 | 11 | 4.2 | 6.1 | 11 |
| 24... | -- | -- | 3.0 | 2.0 | 5.0 | 2.7 | 4.8 | 9.8 | 3.6 | -- | 13 |
| AUG | | | | | | | | | | | |
| 14... | -- | E3.41 | 2.0 | 1.8 | 3.8 | 6.3 | 7.1 | 11 | 3.8 | -- | 20 |
| 28... | -- | -- | 2.9 | 1.6 | 4.5 | 4.4 | 4.9 | 9.4 | 4.2 | -- | 13 |
| SEP | | | | | | | | | | | |
| 11... | -- | 3.37 | -- | 1.3 | 6.1 | 4.1 | 5.6 | 12 | 3.9 | -- | 9.3 |
| 25... | -- | -- | 3.3 | .85 | 4.1 | 5.3 | 4.8 | 8.9 | 3.8 | -- | 20 |

E Estimated.

09419800 LAS VEGAS WASH NEAR BOULDER CITY, NV--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) | CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) | IRON, TOTAL RECOV-ERABLE (UG/L AS FE) |
|---|---|---|---|---|---|---|---|
| OCT | | | | | | | |
| 11... | 1030 | 50 | 400 | 10 | 20 | 20 | 6900 |
| 31... | 1130 | -- | -- | -- | -- | -- | 8700 |
| NOV | | | | | | | |
| 14... | 1145 | 30 | 100 | 0 | 4 | 14 | 4700 |
| 29... | 1315 | -- | -- | -- | -- | -- | 5200 |
| DEC | | | | | | | |
| 12... | 1100 | 33 | 600 | 0 | 30 | 5 | 980 |
| 27... | 1300 | -- | -- | -- | -- | -- | 8600 |
| JAN | | | | | | | |
| 09... | 1000 | 33 | -- | -- | -- | -- | -- |
| 30... | 1030 | -- | -- | -- | -- | -- | 8500 |
| FEB | | | | | | | |
| 16... | 1145 | 70 | 1000 | 0 | 100 | 71 | 54000 |
| MAR | | | | | | | |
| 13... | 0930 | 70 | 1000 | 0 | 0 | 60 | 40000 |
| 28... | 0700 | -- | -- | -- | -- | -- | 10000 |
| APR | | | | | | | |
| 19... | 1430 | 35 | 300 | -- | 30 | 21 | 7700 |
| MAY | | | | | | | |
| 01... | 1230 | -- | -- | -- | -- | -- | 14000 |
| 15... | 1400 | 60 | 400 | -- | 30 | 51 | 17000 |
| 30... | 1400 | -- | -- | -- | -- | -- | 3100 |
| JUN | | | | | | | |
| 14... | 0930 | 28 | 200 | -- | 20 | 16 | 2600 |
| 27... | 1200 | -- | -- | -- | -- | -- | 5000 |
| JUL | | | | | | | |
| 11... | 1400 | 26 | 300 | -- | 10 | 9 | 0 |
| 24... | 1000 | -- | -- | -- | -- | -- | 3000 |
| AUG | | | | | | | |
| 14... | 1300 | 33 | 200 | -- | 30 | 17 | 4800 |
| 28... | 1430 | -- | -- | -- | -- | -- | 8900 |
| SEP | | | | | | | |
| 11... | 1330 | 20 | 300 | -- | 10 | 15 | 2700 |
| 25... | 1215 | -- | -- | -- | -- | -- | 6900 |

| DATE | LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) | MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) | MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) | SELE-NIUM, TOTAL (UG/L AS SE) | SILVER, TOTAL RECOV-ERABLE (UG/L AS AG) | ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) |
|---|---|---|---|---|---|---|
| OCT | | | | | | |
| 11... | 100 | 680 | .2 | 0 | 10 | 70 |
| 31... | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | |
| 14... | 28 | 580 | .0 | 1 | 0 | 40 |
| 29... | -- | -- | -- | -- | -- | -- |
| DEC | | | | | | |
| 12... | 43 | 690 | -- | -- | 1 | 40 |
| 27... | -- | -- | -- | -- | -- | -- |
| JAN | | | | | | |
| 09... | -- | -- | .0 | -- | -- | -- |
| 30... | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | |
| 16... | 210 | 2400 | .0 | 5 | 1 | 270 |
| MAR | | | | | | |
| 13... | 110 | 2500 | .0 | 4 | 0 | 190 |
| 28... | -- | -- | -- | -- | -- | -- |
| APR | | | | | | |
| 19... | -- | 710 | .0 | 0 | 0 | 60 |
| MAY | | | | | | |
| 01... | -- | -- | -- | -- | -- | -- |
| 15... | -- | 2100 | .0 | 1 | 0 | 140 |
| 30... | -- | -- | -- | -- | -- | -- |
| JUN | | | | | | |
| 14... | -- | 1300 | .0 | 2 | 0 | 60 |
| 27... | -- | -- | -- | -- | -- | -- |
| JUL | | | | | | |
| 11... | -- | 500 | .0 | 2 | 0 | 20 |
| 24... | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | |
| 14... | -- | 1300 | .0 | 2 | 0 | 60 |
| 28... | -- | -- | -- | -- | -- | -- |
| SEP | | | | | | |
| 11... | -- | 790 | .0 | 1 | 0 | 90 |
| 25... | -- | -- | -- | -- | -- | -- |

09419800 LAS VEGAS WASH NEAR BOULDER CITY, NV--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | PCB, TOTAL (UG/L) | NAPHTHALENES, POLYCHLOR. TOTAL (UG/L) | ALDRIN, TOTAL (UG/L) | CHLORDANE, TOTAL (UG/L) | DDD, TOTAL (UG/L) | DDE, TOTAL (UG/L) | DDT, TOTAL (UG/L) | DIAZINON, TOTAL (UG/L) | DIELDRIN TOTAL (UG/L) | ENDOSULFAN, TOTAL (UG/L) | ETHION, TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 11... | 1030 | .0 | .00 | .00 | .0 | .00 | .00 | .00 | .06 | .00 | .00 | .00 |
| JAN | | | | | | | | | | | | |
| 09... | 1000 | .0 | .00 | .00 | .0 | .00 | .00 | .00 | .08 | .00 | .00 | .00 |
| APR | | | | | | | | | | | | |
| 19... | 1430 | .0 | .00 | .00 | .0 | .00 | .00 | .00 | .07 | .00 | .00 | .00 |
| JUL | | | | | | | | | | | | |
| 18... | 0730 | .0 | .00 | .00 | .0 | .00 | .00 | .00 | .04 | .00 | .00 | .00 |

| DATE | HEPTACHLOR, TOTAL (UG/L) | HEPTACHLOR EPOXIDE TOTAL (UG/L) | LINDANE TOTAL (UG/L) | MALATHION, TOTAL (UG/L) | METHYL PARATHION, TOTAL (UG/L) | METHYL TRITHION, TOTAL (UG/L) | PARATHION, TOTAL (UG/L) | TOXAPHENE, TOTAL (UG/L) | TOTAL TRITHION (UG/L) | 2,4-D, TOTAL (UG/L) | 2,4,5-T TOTAL (UG/L) | SILVEX, TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 11... | .00 | .00 | .04 | .00 | .00 | .00 | .00 | 0 | .00 | .01 | .00 | .00 |
| JAN | | | | | | | | | | | | |
| 09... | .00 | .00 | .30 | .00 | .00 | .00 | .00 | 0 | .00 | .00 | .00 | .00 |
| APR | | | | | | | | | | | | |
| 19... | .00 | .00 | .03 | .00 | .00 | .00 | .00 | 0 | .00 | .12 | .01 | .02 |
| JUL | | | | | | | | | | | | |
| 18... | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 0 | .00 | .04 | .00 | .00 |

| DATE | TIME | STREAMFLOW, INSTANTANEOUS (CFS) | TEMPERATURE (DEG C) | SEDIMENT, SUSPENDED (MG/L) | SEDIMENT DISCHARGE, SUSPENDED (T/DAY) |
|---|---|---|---|---|---|
| OCT | | | | | |
| 11... | 1030 | 76 | 17.0 | 757 | 155 |
| 31... | 1130 | 79 | 15.0 | 939 | 200 |
| NOV | | | | | |
| 14... | 1145 | 88 | 14.0 | 685 | 163 |
| 29... | 1315 | 99 | 13.0 | 834 | 223 |
| DEC | | | | | |
| 12... | 1100 | 111 | 10.0 | 1300 | 390 |
| JAN | | | | | |
| 09... | 1000 | 86 | 10.0 | 1480 | 344 |
| 30... | 1030 | 93 | 11.5 | 1100 | 276 |
| FEB | | | | | |
| 28... | 1230 | 89 | 14.5 | 1460 | 351 |
| MAR | | | | | |
| 28... | 0700 | 93 | 14.5 | 1640 | 412 |
| APR | | | | | |
| 19... | 1430 | E73 | 17.0 | 1550 | E281 |
| MAY | | | | | |
| 01... | 1230 | 109 | 16.0 | 2650 | 780 |
| 15... | 1400 | E78 | 21.0 | 3440 | E724 |
| 30... | 1400 | 67 | 22.0 | 524 | 95 |
| JUN | | | | | |
| 14... | 0930 | E64 | 20.5 | 418 | E72 |
| 27... | 1200 | 70 | 21.0 | 525 | 99 |
| JUL | | | | | |
| 11... | 1400 | E73 | 23.5 | 556 | E110 |
| 24... | 1000 | 69 | 23.0 | 376 | 71 |
| AUG | | | | | |
| 14... | 1300 | E68 | 23.5 | 626 | E115 |
| 28... | 1430 | 81 | 23.0 | 814 | 178 |
| SEP | | | | | |
| 11... | 1330 | 77 | 21.0 | 371 | 77 |
| 25... | 1215 | 105 | 21.5 | 504 | 143 |

E Estimated.

## 09421000 LAKE MEAD AT HOOVER DAM, AZ-NV

LOCATION.--Lat 36°00'58", long 114°44'13", in NE¼SW¼ sec.3, T.30 N., R.23 W., Gila and Salt River meridian, Mohave-Clark Counties, Hydrologic Unit 15010005, in center of Hoover Dam on Colorado River.

DRAINAGE AREA.--171,700 mi² (444,700 km²), approximately, including 3,959 mi² (10,254 km²) in Great Divide basin in southern Wyoming, which is noncontributing (previously considered part of the Missouri River basin).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--Contents: February 1935 to current year. Evaporation: March 1952 to current year. Diversions (monthly totals only): to Boulder City area, since October 1935; to Henderson and Las Vegas areas, since April 1942; combined diversions since October 1968. Prior to 1946 published as "at Boulder Dam."

REVISED RECORDS.--WSP 899: 1935-39.

GAGE.--Water-stage indicator read once daily at midnight, with supplementary water-stage recorder. Datum of gage is 0.00 ft (0.000 m) to Local Powerhouse datum and is 0.40 ft (0.122 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Reservoir is formed by concrete arch-gravity dam; storage began Feb. 1, 1935; dam completed Mar. 1, 1936. Total capacity (based on 1963-64 resurvey by Coast and Geodetic Survey; capacity table put into use Apr. 1, 1967), 29,755,000 acre-ft (36,700 hm³), consisting of the following: Dead storage, 2,378,000 acre-ft (2,930 hm³) below gage height 895.0 ft (272.80 m)--gate sills in outlet towers; usable contents, 26,159,000 acre-ft (32,300 hm³) between gage heights 895.0 ft (272.80 m) and 1,221.4 ft (372.28 m)--top of automatic spillway gates in raised position; and uncontrolled storage, 1,218,000 acre-ft (1,500 hm³) between gage heights 1,221.4 ft (372.28 m) and 1,229.0 ft (374.60 m)--maximum water surface. Reservoir is used to store water for flood control, irrigation, municipal water supply, and power development. Figures given herein represent usable contents.

DIVERSIONS FROM LAKE MEAD.--Diversions to Boulder City area at dam; diversions to Henderson and Las Vegas areas from intakes 6 mi (10 km) upstream. Diversions measured by Venturi meters. Water used for municipal and industrial purposes.

COOPERATION.--Records of gage height and contents furnished by Bureau of Reclamation. Records of diversions from Lake Mead furnished by Bureau of Reclamation and Colorado River Commission of Nevada.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 27,790,000 acre-ft (34,300 hm³) July 29, 30, 1941, gage height, 1,220.45 ft (371.993 m); minimum (since 1940), 10,695,000 acre-ft (1,200 hm³) Apr. 26, 1956, gage height, 1,083.21 ft (330.162 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 21,460,000 acre-ft (26,500 hm³) Mar. 12, gage height, 1,189.73 ft (362.630 m); minimum, 20,004,000 acre-ft (24,700 hm³) Dec. 15, gage height, 1,178.96 ft (359.347 m).

CONTENTS, IN THOUSANDS OF ACRE-FEET, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
INSTANTANEOUS OBSERVATIONS AT 2400

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 20221 | 20182 | 20036 | 20280 | 20974 | 21173 | 21294 | 20947 | 20751 | 20785 | 20571 | 20647 |
| 2 | 20246 | 20170 | 20029 | 20292 | 20997 | 21191 | 21305 | 20939 | 20753 | 20793 | 20569 | 20664 |
| 3 | 20250 | 20164 | 20040 | 20304 | 21022 | 21219 | 21295 | 20921 | 20770 | 20795 | 20568 | 20678 |
| 4 | 20245 | 20153 | 20055 | 20319 | 21042 | 21259 | 21281 | 20898 | 20791 | 20795 | 20568 | 20700 |
| 5 | 20237 | 20141 | 20054 | 20338 | 21064 | 21306 | 21288 | 20890 | 20793 | 20787 | 20568 | 20708 |
| 6 | 20237 | 20150 | 20042 | 20366 | 21068 | 21353 | 21269 | 20899 | 20776 | 20780 | 20588 | 20728 |
| 7 | 20229 | 20153 | 20028 | 20399 | 21073 | 21381 | 21244 | 20914 | 20783 | 20755 | 20583 | 20746 |
| 8 | 20233 | 20153 | 20017 | 20429 | 21074 | 21407 | 21241 | 20894 | 20784 | 20746 | 20568 | 20770 |
| 9 | 20242 | 20143 | 20005 | 20453 | 21079 | 21425 | 21248 | 20869 | 20777 | 20751 | 20573 | 20799 |
| 10 | 20238 | 20140 | 20019 | 20478 | 21094 | 21439 | 21239 | 20850 | 20788 | 20737 | 20577 | 20827 |
| 11 | 20227 | 20144 | 20038 | 20504 | 21123 | 21440 | 21217 | 20842 | 20810 | 20727 | 20575 | 20839 |
| 12 | 20217 | 20153 | 20030 | 20529 | 21138 | 21460 | 21196 | 20825 | 20803 | 20720 | 20590 | 20854 |
| 13 | 20219 | 20160 | 20026 | 20548 | 21142 | 21454 | 21173 | 20825 | 20792 | 20715 | 20610 | 20871 |
| 14 | 20217 | 20158 | 20020 | 20569 | 21142 | 21449 | 21156 | 20826 | 20781 | 20701 | 20616 | 20886 |
| 15 | 20218 | 20157 | 20004 | 20591 | 21153 | 21435 | 21148 | 20818 | 20777 | 20711 | 20606 | 20866 |
| 16 | 20226 | 20148 | 20016 | 20610 | 21163 | 21418 | 21160 | 20815 | 20783 | 20715 | 20592 | 20898 |
| 17 | 20215 | 20131 | 20019 | 20627 | 21173 | 21403 | 21134 | 20806 | 20801 | 20708 | 20583 | 20903 |
| 18 | 20200 | 20115 | 20034 | 20651 | 21184 | 21396 | 21116 | 20792 | 20807 | 20692 | 20577 | 20901 |
| 19 | 20170 | 20112 | 20033 | 20680 | 21202 | 21392 | 21103 | 20785 | 20803 | 20678 | 20585 | 20893 |
| 20 | 20176 | 20116 | 20034 | 20704 | 21218 | 21375 | 21077 | 20793 | 20791 | 20669 | 20599 | 20878 |
| 21 | 20172 | 20111 | 20040 | 20735 | 21217 | 21363 | 21058 | 20796 | 20783 | 20662 | 20588 | 20868 |
| 22 | 20176 | 20100 | 20063 | 20769 | 21200 | 21341 | 21052 | 20784 | 20777 | 20666 | 20581 | 20861 |
| 23 | 20184 | 20096 | 20082 | 20792 | 21191 | 21330 | 21063 | 20768 | 20769 | 20657 | 20580 | 20865 |
| 24 | 20178 | 20108 | 20111 | 20808 | 21182 | 21328 | 21042 | 20751 | 20780 | 20643 | 20587 | 20868 |
| 25 | 20166 | 20107 | 20135 | 20833 | 21189 | 21232 | 21019 | 20743 | 20801 | 20620 | 20595 | 20860 |
| 26 | 20165 | 20106 | 20154 | 20863 | 21197 | 21341 | 21003 | 20741 | 20801 | 20590 | 20619 | 20853 |
| 27 | 20166 | 20107 | 20164 | 20886 | 21178 | 21328 | 20980 | 20757 | 20795 | 20581 | 20650 | 20856 |
| 28 | 20173 | 20086 | 20177 | 20913 | 21169 | 21335 | 20951 | 20773 | 20787 | 20576 | 20653 | 20854 |
| 29 | 20178 | 20066 | 20202 | 20939 | --- | 21334 | 20951 | 20776 | 20785 | 20584 | 20646 | 20852 |
| 30 | 20190 | 20048 | 20225 | 20952 | --- | 21334 | 20966 | 20765 | 20778 | 20594 | 20647 | 20869 |
| 31 | 20189 | --- | 20250 | 20959 | --- | 21281 | --- | 20754 | --- | 20583 | 20641 | --- |
| MAX | 20250 | 20182 | 20250 | 20959 | 21218 | 21460 | 21305 | 20947 | 20810 | 20795 | 20653 | 20903 |
| MIN | 20165 | 20048 | 20004 | 20280 | 20974 | 21173 | 20951 | 20741 | 20751 | 20576 | 20568 | 20647 |
| (*) | 1180.36 | 1179.29 | 1180.82 | 1186.09 | 1187.62 | 1188.44 | 1186.14 | 1184.58 | 1184.76 | 1183.31 | 1183.74 | 1185.43 |
| (†) | -16000 | -141000 | +202000 | +709000 | +210000 | +112000 | -315000 | -212000 | +24000 | -195000 | +58000 | +228000 |
| (‡) | 8040 | 6190 | 4100 | 4160 | 4200 | 5270 | 6850 | 9370 | 11570 | 12260 | 11980 | 10340 |
| (**) | 6.5 | 6.4 | 4.2 | 3.7 | 3.7 | 3.4 | 4.3 | 6.2 | 7.9 | 7.7 | 10.5 | 8.6 |
| (††) | 71800 | 70500 | 46200 | 41500 | 42300 | 39100 | 49200 | 70100 | 89200 | 86600 | 117700 | 97200 |

CAL YR 1977 † -953000 ‡ 90880 ** 75.5 †† 836300
WTR YR 1978 † +664000 ‡ 94300 ** 73.1 †† 821400

* Gage height, in feet, at end of month.
† Change in contents, in acre-feet.
‡ Diversions, in acre-feet.
** Gross evaporation, in inches, from Lake Mead.
†† Gross evaporation, in acre-feet, from Lake Mead.

NOTE.--Figures of gross evaporation are based on data obtained on Lake Mead by the Bureau of Reclamation and at Las Vegas by National Weather Service, and are computed by the Geological Survey. Only the mass-transfer method described in Geological Survey Professional Paper 298 is used. "Gross" denoted the total evaporation from the lake without deduction for precipitation on the lake surface or for natural losses that would have occurred in the area now occupied by the lake. Starting February 1976 coefficient changed to 0.00179.

09421000 LAKE MEAD AT HOOVER DAM, AZ-NV--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1940 to current year.

REMARKS.--Unpublished chemical analyses for 1963 water year available from Metropolitan Water District of Southern California, LaVerne, Calif.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | SAMPLING DEPTH (FT) | ELEVATION ABOVE NGVD (FEET) | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | OXYGEN, DISSOLVED (MG/L) | HARDNESS (MG/L AS CACO3) | HARDNESS, NONCARBONATE (MG/L CACO3) | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 27... | 0900 | .0 | 1180.00 | 1080 | 8.0 | 22.0 | 6.8 | 330 | 220 | 79 | 32 | 100 |
| 27... | 0905 | 10 | 1170.00 | 1100 | 8.3 | 22.0 | 6.8 | -- | -- | -- | -- | -- |
| 27... | 0910 | 25 | 1155.00 | 1100 | 8.5 | 22.0 | 6.7 | -- | -- | -- | -- | -- |
| 27... | 0925 | 75 | 1105.00 | 1060 | 8.5 | 19.0 | 2.4 | -- | -- | -- | -- | -- |
| 27... | 0935 | 125 | 1055.00 | 1080 | 8.4 | 15.0 | 4.3 | 330 | 210 | 84 | 30 | 100 |
| 27... | 0945 | 175 | 1005.00 | 1070 | 8.3 | 13.5 | 5.6 | -- | -- | -- | -- | -- |
| 27... | 1000 | 225 | 955.00 | 1060 | 8.2 | 13.0 | 6.3 | -- | -- | -- | -- | -- |
| 27... | 1005 | 267 | 913.00 | 1050 | 8.6 | 12.0 | 6.6 | 320 | 190 | 83 | 28 | 97 |
| 27... | 1015 | 275 | 905.00 | 1040 | 8.3 | 12.0 | 6.6 | -- | -- | -- | -- | -- |
| 27... | 1025 | 325 | 855.00 | 1050 | 8.5 | 12.0 | 6.4 | -- | -- | -- | -- | -- |
| 27... | 1040 | 375 | 805.00 | 1050 | 8.2 | 12.0 | 6.0 | -- | -- | -- | -- | -- |
| 27... | 1100 | 425 | 755.00 | 1050 | 8.2 | 12.0 | 5.0 | 320 | 190 | 82 | 28 | 97 |
| 27... | 1120 | 460 | 720.00 | 1060 | 8.0 | 12.0 | 3.3 | -- | -- | -- | -- | -- |
| DEC | | | | | | | | | | | | |
| 07... | 0830 | .0 | 1182.00 | 1100 | 7.9 | 16.0 | 6.8 | 330 | 210 | 83 | 30 | 100 |
| 07... | 0845 | 10 | 1172.00 | 1100 | 7.8 | 16.5 | 6.8 | -- | -- | -- | -- | -- |
| 07... | 0900 | 25 | 1157.00 | 1100 | 8.0 | 16.5 | 6.8 | -- | -- | -- | -- | -- |
| 07... | 0910 | 75 | 1107.00 | 1100 | 8.1 | 16.5 | 6.6 | -- | -- | -- | -- | -- |
| 07... | 0930 | 125 | 1057.00 | 1100 | 7.9 | 16.0 | 4.5 | 330 | 210 | 84 | 30 | 100 |
| 07... | 0950 | 175 | 1007.00 | 1060 | 7.9 | 14.0 | 5.2 | 330 | 200 | 83 | 30 | 99 |
| 07... | 1000 | 225 | 957.00 | 1050 | 8.1 | 13.0 | 6.3 | -- | -- | -- | -- | -- |
| 07... | 1010 | 267 | 915.00 | 1050 | 8.0 | 12.5 | 6.3 | 320 | 190 | 82 | 29 | 97 |
| 07... | 1020 | 275 | 907.00 | 1050 | 8.1 | 12.5 | 6.3 | -- | -- | -- | -- | -- |
| 07... | 1040 | 325 | 857.00 | 1040 | 8.0 | 12.0 | 6.3 | -- | -- | -- | -- | -- |
| 07... | 1100 | 375 | 807.00 | 1040 | 8.0 | 12.0 | 5.5 | -- | -- | -- | -- | -- |
| 07... | 1115 | 425 | 757.00 | 1050 | 7.9 | 12.0 | 4.8 | 320 | 180 | 81 | 28 | 96 |
| 07... | 1130 | 460 | 722.00 | 1050 | 7.9 | 12.0 | 3.5 | -- | -- | -- | -- | -- |
| JAN | | | | | | | | | | | | |
| 04... | 0845 | .0 | 1181.00 | 1080 | 7.3 | 14.0 | 7.6 | 330 | 210 | 83 | 30 | 100 |
| 04... | 0900 | 10 | 1171.00 | 1100 | 7.8 | 14.0 | 7.8 | -- | -- | -- | -- | -- |
| 04... | 0910 | 25 | 1156.00 | 1100 | 7.9 | 14.5 | 8.0 | -- | -- | -- | -- | -- |
| 04... | 0925 | 75 | 1106.00 | 1100 | 7.9 | 14.5 | 8.0 | -- | -- | -- | -- | -- |
| 04... | 0950 | 125 | 1056.00 | 1100 | 8.1 | 14.5 | 7.8 | -- | -- | -- | -- | -- |
| 04... | 1000 | 175 | 1006.00 | 1060 | 8.2 | 13.5 | 5.9 | 330 | 200 | 83 | 30 | 96 |
| 04... | 1010 | 225 | 956.00 | 1050 | 8.2 | 13.0 | 6.0 | -- | -- | -- | -- | -- |
| 04... | 1020 | 267 | 914.00 | 1050 | 8.0 | 12.5 | 6.1 | 320 | 190 | 83 | 28 | 95 |
| 04... | 1040 | 275 | 906.00 | 1050 | 8.0 | 12.5 | 6.3 | -- | -- | -- | -- | -- |
| 04... | 1050 | 325 | 856.00 | 1050 | 8.0 | 12.0 | 6.3 | -- | -- | -- | -- | -- |
| 04... | 1100 | 375 | 806.00 | 1050 | 7.8 | 12.0 | 6.3 | -- | -- | -- | -- | -- |
| 04... | 1115 | 425 | 756.00 | 1050 | 7.8 | 12.0 | 5.5 | 330 | 190 | 81 | 30 | 93 |
| 04... | 1130 | 460 | 721.00 | 1060 | 7.6 | 12.0 | 4.0 | -- | -- | -- | -- | -- |
| 30... | 0900 | .0 | 1186.00 | 1080 | 8.0 | 13.5 | 9.1 | 330 | 200 | 84 | 30 | 100 |
| 30... | 0910 | 10 | 1176.00 | 1090 | 8.1 | 13.5 | 9.0 | -- | -- | -- | -- | -- |
| 30... | 0925 | 25 | 1161.00 | 1090 | 8.1 | 13.5 | 9.0 | -- | -- | -- | -- | -- |
| 30... | 0935 | 75 | 1111.00 | 1100 | 8.2 | 13.5 | 8.6 | -- | -- | -- | -- | -- |
| 30... | 0945 | 125 | 1061.00 | 1100 | 8.0 | 13.5 | 8.5 | -- | -- | -- | -- | -- |
| 30... | 0955 | 175 | 1011.00 | 1100 | 8.2 | 13.5 | 8.5 | 330 | 200 | 84 | 30 | 100 |
| 30... | 1000 | 225 | 961.00 | 1050 | 7.9 | 13.0 | 6.3 | 330 | 210 | 83 | 28 | 98 |
| 30... | 1010 | 275 | 911.00 | 1040 | 8.0 | 12.5 | 6.2 | 320 | 190 | 83 | 28 | 97 |
| 30... | 1020 | 325 | 861.00 | 1050 | 7.8 | 12.0 | 6.2 | -- | -- | -- | -- | -- |
| 30... | 1030 | 375 | 811.00 | 1060 | 7.7 | 12.0 | 5.0 | 330 | 200 | 81 | 30 | 100 |
| 30... | 1040 | 425 | 761.00 | 1060 | 7.8 | 12.0 | 5.0 | 320 | 190 | 80 | 29 | 98 |
| 30... | 1050 | 450 | -- | 1060 | 7.7 | 12.0 | 4.2 | -- | -- | -- | -- | -- |
| 30... | 1100 | 468 | 718.00 | 1060 | 10.0 | 12.0 | 3.5 | -- | -- | -- | -- | -- |

09421000 LAKE MEAD AT HOOVER DAM, AZ-NV--Continued

COOPERATION.--Water samples collected by Bureau of Reclamation and analyzed by the Metropolitan Water District of Southern California, LaVerne, Calif.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | SODIUM PERCENT | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | CAR-BONATE (MG/L AS CO3) | ALKA-LINITY (MG/L AS CACO3) | CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER AC-FT) | NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 27... | 39 | 2.4 | 5.0 | 0 | 112 | 2.2 | 300 | 94 | 8.3 | 686 | .93 | .02 |
| 27... | -- | -- | -- | -- | -- | -- | -- | 94 | -- | -- | -- | -- |
| 27... | -- | -- | -- | -- | -- | -- | -- | 94 | -- | -- | -- | -- |
| 27... | -- | -- | -- | -- | -- | -- | -- | 88 | -- | -- | -- | -- |
| 27... | 39 | 2.4 | 4.6 | 0 | 129 | 1.0 | 290 | 88 | 8.0 | 683 | .93 | .20 |
| 27... | -- | -- | -- | -- | -- | -- | -- | 86 | -- | -- | -- | -- |
| 27... | -- | -- | -- | -- | -- | -- | -- | 84 | -- | -- | -- | -- |
| 27... | 39 | 2.4 | 4.3 | 0 | 135 | .7 | 270 | 84 | 9.3 | 658 | .89 | .18 |
| 27... | -- | -- | -- | -- | -- | -- | -- | 84 | -- | -- | -- | -- |
| 27... | -- | -- | -- | -- | -- | -- | -- | 83 | -- | -- | -- | -- |
| 27... | -- | -- | -- | -- | -- | -- | -- | 83 | -- | -- | -- | -- |
| 27... | 39 | 2.4 | 4.3 | 0 | 134 | 1.6 | 280 | 82 | 9.4 | 664 | .90 | .20 |
| 27... | -- | -- | -- | -- | -- | -- | -- | 83 | -- | -- | -- | -- |
| DEC | | | | | | | | | | | | |
| 07... | 39 | 2.4 | 5.0 | 0 | 121 | 3.0 | 300 | 92 | 8.0 | 692 | .94 | .16 |
| 07... | -- | -- | -- | 0 | 122 | 3.8 | -- | 92 | -- | -- | -- | -- |
| 07... | -- | -- | -- | 0 | 122 | 2.4 | -- | 92 | -- | -- | -- | -- |
| 07... | -- | -- | -- | 0 | 122 | 1.9 | -- | 92 | -- | -- | -- | -- |
| 07... | 39 | 2.4 | 4.7 | 0 | 125 | 3.1 | 290 | 90 | 8.1 | 683 | .93 | .16 |
| 07... | 39 | 2.4 | 4.6 | 0 | 131 | 3.2 | 280 | 86 | 7.8 | 670 | .91 | .20 |
| 07... | -- | -- | -- | -- | 131 | 2.0 | -- | 84 | -- | -- | -- | -- |
| 07... | 39 | 2.3 | 4.4 | 0 | 132 | 2.6 | 280 | 84 | 9.0 | 665 | .90 | .16 |
| 07... | -- | -- | -- | 0 | 132 | 2.0 | -- | 84 | -- | -- | -- | -- |
| 07... | -- | -- | -- | 0 | 132 | 2.6 | -- | 84 | -- | -- | -- | -- |
| 07... | -- | -- | -- | 0 | 134 | 2.6 | -- | 84 | -- | -- | -- | -- |
| 07... | 39 | 2.3 | 4.4 | 0 | 134 | 3.3 | 270 | 84 | 9.1 | 654 | .89 | .20 |
| 07... | -- | -- | -- | 0 | 132 | 3.2 | -- | 84 | -- | -- | -- | -- |
| JAN | | | | | | | | | | | | |
| 04... | 39 | 2.4 | 5.0 | 0 | 124 | 12 | 300 | 92 | 8.6 | 694 | .94 | .14 |
| 04... | -- | -- | -- | 0 | 125 | 3.9 | -- | 91 | -- | -- | -- | -- |
| 04... | -- | -- | -- | 0 | 126 | 3.1 | -- | 90 | -- | -- | -- | -- |
| 04... | -- | -- | -- | 0 | 125 | 3.1 | -- | 92 | -- | -- | -- | -- |
| 04... | -- | -- | -- | 0 | 125 | 1.9 | -- | 92 | -- | -- | -- | -- |
| 04... | 38 | 2.3 | 4.6 | 0 | 133 | 1.6 | 280 | 86 | 8.8 | 669 | .91 | .20 |
| 04... | -- | -- | -- | 0 | 135 | 1.7 | -- | 85 | -- | -- | -- | -- |
| 04... | 39 | 2.3 | 4.4 | 0 | 135 | 2.6 | 280 | 83 | 9.0 | 665 | .90 | .20 |
| 04... | -- | -- | -- | 0 | 134 | 2.6 | -- | 83 | -- | -- | -- | -- |
| 04... | -- | -- | -- | 0 | 135 | 2.6 | -- | 83 | -- | -- | -- | -- |
| 04... | -- | -- | -- | 0 | 135 | 4.2 | -- | 84 | -- | -- | -- | -- |
| 04... | 38 | 2.2 | 4.4 | 0 | 135 | 4.2 | 270 | 84 | 9.2 | 654 | .89 | .18 |
| 04... | -- | -- | -- | 0 | 136 | 6.7 | -- | 85 | -- | -- | -- | -- |
| 30... | 39 | 2.4 | 4.7 | 0 | 126 | 2.5 | 290 | 90 | 8.6 | 684 | .93 | .16 |
| 30... | -- | -- | -- | 0 | 126 | 2.0 | -- | 90 | -- | -- | -- | -- |
| 30... | -- | -- | -- | 0 | 126 | 2.0 | -- | 90 | -- | -- | -- | -- |
| 30... | -- | -- | -- | 0 | 126 | 1.6 | -- | 90 | -- | -- | -- | -- |
| 30... | -- | -- | -- | 0 | 126 | 2.5 | -- | 91 | -- | -- | -- | -- |
| 30... | 39 | 2.4 | 4.8 | 0 | 125 | 1.5 | 290 | 92 | 8.2 | 685 | .93 | .16 |
| 30... | 39 | 2.4 | 4.4 | 0 | 122 | 3.0 | 280 | 91 | 8.9 | 668 | .91 | .02 |
| 30... | 39 | 2.4 | 4.3 | 0 | 134 | 2.6 | 270 | 83 | 8.9 | 655 | .89 | .02 |
| 30... | -- | -- | -- | 0 | 134 | 4.1 | -- | 84 | -- | -- | -- | -- |
| 30... | 40 | 2.4 | 4.6 | 0 | 130 | 5.1 | 280 | 88 | 9.0 | 672 | .91 | .20 |
| 30... | 40 | 2.4 | 4.3 | 0 | 135 | 4.2 | 270 | 84 | 9.7 | 657 | .89 | .23 |
| 30... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 30... | -- | -- | -- | 0 | 136 | .0 | -- | 84 | -- | -- | -- | -- |

09421000 LAKE MEAD AT HOOVER DAM, AZ-NV--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | SAMPLING DEPTH (FT) | ELEVATION ABOVE NGVD (FEET) | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | OXYGEN, DISSOLVED (MG/L) | HARDNESS (MG/L AS CACO3) | HARDNESS, NONCARBONATE (MG/L CACO3) | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MAR | | | | | | | | | | | | |
| 07... | 0900 | .0 | 1189.00 | 1060 | 7.2 | 14.0 | 8.9 | 330 | 200 | 84 | 30 | 100 |
| 07... | 0910 | 10 | 1179.00 | 1080 | 7.2 | 13.3 | 9.4 | -- | -- | -- | -- | -- |
| 07... | 0925 | 25 | 1164.00 | 1080 | 7.8 | 13.5 | 9.1 | -- | -- | -- | -- | -- |
| 07... | 0935 | 75 | 1114.00 | 1090 | 7.6 | 13.0 | 9.1 | -- | -- | -- | -- | -- |
| 07... | 0945 | 125 | 1064.00 | 1090 | 7.8 | 13.0 | 9.0 | 330 | 200 | 85 | 29 | 100 |
| 07... | 0955 | 175 | 0.10 | 1090 | 7.8 | 13.0 | 9.0 | -- | -- | -- | -- | -- |
| 07... | 1000 | 225 | 964.00 | 1090 | 7.8 | 13.0 | 9.0 | 330 | 200 | 85 | 29 | 100 |
| 07... | 1010 | 275 | 914.00 | 1090 | 7.8 | 13.0 | 8.7 | -- | -- | -- | -- | -- |
| 07... | 1015 | 277 | -- | 1090 | 7.8 | 13.0 | 8.7 | -- | -- | -- | -- | -- |
| 07... | 1020 | 325 | 864.00 | 1080 | 7.7 | 13.0 | 7.4 | 330 | 200 | 83 | 29 | 100 |
| 07... | 1030 | 375 | 814.00 | 1060 | 7.7 | 12.5 | 6.2 | -- | -- | -- | -- | -- |
| 07... | 1040 | 425 | 764.00 | 1080 | 7.6 | 12.0 | 5.5 | 330 | 190 | 83 | 29 | 97 |
| 07... | 1100 | 470 | 719.00 | 1080 | 8.1 | 12.0 | 5.2 | -- | -- | -- | -- | -- |
| 30... | 0900 | .0 | 1188.00 | 1080 | 8.2 | 16.5 | 10.1 | 330 | 200 | 83 | 30 | 100 |
| 30... | 0910 | 10 | 1177.00 | 1080 | 8.3 | 16.5 | 10.1 | -- | -- | -- | -- | -- |
| 30... | 0925 | 25 | 1163.00 | 1080 | 8.3 | 16.0 | 10.0 | -- | -- | -- | -- | -- |
| 30... | 0935 | 75 | 1113.00 | 1090 | 8.2 | 13.5 | 9.2 | -- | -- | -- | -- | -- |
| 30... | 0945 | 125 | 1063.00 | 1090 | 8.2 | 13.0 | 8.8 | -- | -- | -- | -- | -- |
| 30... | 0955 | 175 | 1013.00 | 1080 | 8.0 | 13.0 | 8.2 | -- | -- | -- | -- | -- |
| 30... | 1000 | 225 | 963.00 | 1070 | 8.0 | 13.0 | 7.1 | 330 | 200 | 82 | 30 | 97 |
| 30... | 1010 | 275 | 913.00 | 1050 | 8.0 | 12.0 | 5.6 | -- | -- | -- | -- | -- |
| 30... | 1020 | 279 | 909.00 | 1050 | 8.0 | 12.0 | 5.6 | 320 | 190 | 82 | 29 | 96 |
| 30... | 1030 | 325 | 863.00 | 1060 | 7.9 | 12.0 | 5.3 | -- | -- | -- | -- | -- |
| 30... | 1040 | 375 | 813.00 | 1070 | 7.9 | 12.0 | 5.2 | -- | -- | -- | -- | -- |
| 30... | 1050 | 425 | 763.00 | 1080 | 7.9 | 12.0 | 5.0 | 330 | 190 | 84 | 29 | 96 |
| 30... | 1100 | 470 | 718.00 | 1080 | 7.9 | 12.0 | 4.8 | -- | -- | -- | -- | -- |
| APR | | | | | | | | | | | | |
| 27... | 0800 | .0 | 1186.00 | 1040 | 8.5 | 18.5 | 9.4 | 340 | 210 | 85 | 30 | 100 |
| 27... | 0815 | 10 | 1176.00 | 1060 | 8.7 | 18.0 | 9.6 | -- | -- | -- | -- | -- |
| 27... | 0830 | 25 | 1161.00 | 1070 | 8.4 | 17.0 | 9.4 | -- | -- | -- | -- | -- |
| 27... | 0845 | 75 | 1111.00 | 1080 | 8.2 | 14.0 | 8.6 | -- | -- | -- | -- | -- |
| 27... | 0900 | 125 | 1061.00 | 1080 | 8.1 | 13.5 | 8.2 | 330 | 200 | 84 | 30 | 100 |
| 27... | 0930 | 175 | 1011.00 | 1080 | 8.6 | 13.0 | 7.8 | -- | -- | -- | -- | -- |
| 27... | 1000 | 225 | 961.00 | 1060 | 8.4 | 13.0 | 7.2 | 330 | 200 | 83 | 29 | 99 |
| 27... | 1030 | 275 | 911.00 | 1060 | 8.4 | 12.5 | 6.6 | -- | -- | -- | -- | -- |
| 27... | 1100 | 325 | 861.00 | 1050 | 8.7 | 12.0 | 6.4 | -- | -- | -- | -- | -- |
| 27... | 1130 | 375 | 811.00 | 1050 | 8.7 | 12.0 | 6.4 | -- | -- | -- | -- | -- |
| 27... | 1200 | 425 | 761.00 | 1050 | 8.6 | 12.0 | 6.4 | 330 | 190 | 82 | 30 | 99 |
| 27... | 1230 | 468 | 718.00 | 1060 | 8.7 | 12.0 | 6.4 | -- | -- | -- | -- | -- |
| JUN | | | | | | | | | | | | |
| 02... | 0930 | .0 | 1186.00 | 1040 | 8.1 | 24.0 | 10.3 | 320 | 200 | 78 | 30 | 100 |
| 02... | 0945 | 10 | 1176.00 | 1050 | 8.4 | 21.5 | 10.4 | -- | -- | -- | -- | -- |
| 02... | 1000 | 25 | 1161.00 | 1080 | 8.4 | 19.5 | 10.4 | -- | -- | -- | -- | -- |
| 02... | 1015 | 75 | 1111.00 | 1100 | 8.3 | 17.0 | 7.8 | -- | -- | -- | -- | -- |
| 02... | 1030 | 125 | 1061.00 | 1080 | 7.7 | 15.0 | 7.3 | 331 | 200 | 83 | 30 | 100 |
| 02... | 1040 | 175 | -- | 1080 | 8.1 | 13.5 | 7.3 | -- | -- | -- | -- | -- |
| 02... | 1045 | 225 | 961.00 | 1080 | 7.5 | 13.0 | 7.0 | -- | -- | -- | -- | -- |
| 02... | 1100 | 275 | 911.00 | 1060 | 8.3 | 12.5 | 6.7 | 324 | 190 | 81 | 30 | 100 |
| 02... | 1115 | 325 | 861.00 | 1060 | 8.3 | 12.0 | 6.3 | -- | -- | -- | -- | -- |
| 02... | 1130 | 375 | 811.00 | 1080 | 8.3 | 12.0 | 6.4 | -- | -- | -- | -- | -- |
| 02... | 1145 | 425 | 761.00 | 1060 | 8.1 | 12.0 | 6.1 | 319 | 180 | 80 | 29 | 98 |
| 02... | 1200 | 468 | 718.00 | 1060 | 7.7 | 12.0 | 5.8 | -- | -- | -- | -- | -- |
| 29... | 0845 | .0 | 1185.00 | 1060 | 8.3 | 24.0 | 8.5 | 330 | 210 | 82 | 30 | 100 |
| 29... | 0850 | 10 | 1175.00 | 1080 | 8.3 | 23.5 | 8.6 | -- | -- | -- | -- | -- |
| 29... | 0855 | 25 | 1160.00 | 1080 | 8.3 | 23.0 | 8.6 | -- | -- | -- | -- | -- |
| 29... | 0905 | 75 | 1110.00 | 1080 | 7.8 | 17.0 | 6.4 | 330 | 200 | 83 | 30 | 100 |
| 29... | 0915 | 125 | 1060.00 | 1080 | 7.8 | 15.5 | 6.8 | -- | -- | -- | -- | -- |
| 29... | 0925 | 175 | 1010.00 | 1080 | 7.8 | 14.0 | 7.0 | -- | -- | -- | -- | -- |
| 29... | 0935 | 225 | 960.00 | 1070 | 8.0 | 13.5 | 6.8 | 330 | 200 | 84 | 30 | 100 |
| 29... | 0945 | 275 | 910.00 | 1060 | 7.8 | 13.0 | 6.6 | 330 | 200 | 83 | 30 | 99 |
| 29... | 1000 | 325 | 860.00 | 1060 | 7.9 | 13.0 | 6.6 | -- | -- | -- | -- | -- |
| 29... | 1010 | 375 | 810.00 | 1080 | 7.9 | 13.0 | 6.2 | -- | -- | -- | -- | -- |
| 29... | 1020 | 425 | 760.00 | 1060 | 7.9 | 12.0 | 6.0 | 320 | 190 | 81 | 29 | 99 |
| 29... | 1040 | 468 | 717.00 | 1060 | 7.7 | 12.0 | 5.4 | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | | | | |
| 27... | 0840 | .0 | 1183.00 | 1040 | 8.3 | 29.0 | 8.5 | 320 | 210 | 77 | 31 | 110 |

09421000 LAKE MEAD AT HOOVER DAM, AZ-NV--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | SODIUM PERCENT | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | CAR-BONATE (MG/L AS CO3) | ALKA-LINITY (MG/L AS CACO3) | CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER AC-FT) | NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MAR | | | | | | | | | | | | |
| 07... | 39 | 2.4 | 4.6 | 0 | 132 | 16 | 290 | 86 | 9.3 | 684 | .93 | .11 |
| 07... | -- | -- | -- | 0 | 132 | 16 | -- | 87 | -- | -- | -- | -- |
| 07... | -- | -- | -- | 0 | 133 | 4.1 | -- | 86 | -- | -- | -- | -- |
| 07... | -- | -- | -- | 0 | 132 | 6.5 | -- | 87 | -- | -- | -- | -- |
| 07... | 39 | 2.4 | 4.5 | 0 | 132 | 4.1 | 290 | 87 | 9.1 | 685 | .93 | .11 |
| 07... | -- | -- | -- | 0 | 133 | 4.1 | -- | 89 | -- | -- | -- | -- |
| 07... | 39 | 2.4 | 4.7 | 0 | 133 | 4.1 | 290 | 88 | 9.1 | 687 | .93 | .09 |
| 07... | -- | -- | -- | 0 | 133 | 4.1 | -- | 88 | -- | -- | -- | -- |
| 07... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 07... | 40 | 2.4 | 4.4 | 0 | 135 | 5.3 | 290 | 85 | 9.3 | 683 | .93 | .14 |
| 07... | -- | -- | -- | 0 | 139 | 5.4 | -- | 81 | -- | -- | -- | -- |
| 07... | 39 | 2.3 | 4.3 | 0 | 140 | 6.9 | 270 | 83 | 10 | 662 | .90 | .18 |
| 07... | -- | -- | -- | 0 | 140 | 2.2 | -- | 82 | -- | -- | -- | -- |
| 30... | 39 | 2.4 | 4.5 | 0 | 126 | 1.6 | 290 | 88 | 6.8 | 679 | .92 | .09 |
| 30... | -- | -- | -- | -- | 127 | 1.2 | -- | 89 | -- | -- | -- | -- |
| 30... | -- | -- | -- | -- | 127 | 1.2 | -- | 87 | -- | -- | -- | -- |
| 30... | -- | -- | -- | -- | 127 | 1.6 | -- | 88 | -- | -- | -- | -- |
| 30... | -- | -- | -- | -- | 128 | 1.6 | -- | 88 | -- | -- | -- | -- |
| 30... | -- | -- | -- | -- | 129 | 2.5 | -- | 87 | -- | -- | -- | -- |
| 30... | 39 | 2.3 | 4.3 | 0 | 130 | 2.5 | 280 | 85 | 8.7 | 666 | .91 | .23 |
| 30... | -- | -- | -- | -- | 130 | 2.5 | -- | 83 | -- | -- | -- | -- |
| 30... | 39 | 2.3 | 4.1 | 0 | 132 | 2.6 | 270 | 82 | 9.2 | 653 | .89 | .23 |
| 30... | -- | -- | -- | -- | 133 | 3.3 | -- | 81 | -- | -- | -- | -- |
| 30... | -- | -- | -- | -- | 134 | 3.3 | -- | 83 | -- | -- | -- | -- |
| 30... | 38 | 2.3 | 4.3 | 0 | 138 | 3.4 | 280 | 83 | 9.5 | 670 | .91 | .27 |
| 30... | -- | -- | -- | -- | 139 | 3.4 | -- | 84 | -- | -- | -- | -- |
| APR | | | | | | | | | | | | |
| 27... | 39 | 2.4 | 4.4 | 2 | 127 | .8 | 290 | 87 | 8.0 | 681 | .93 | .11 |
| 27... | -- | -- | -- | 1 | 129 | .5 | -- | 87 | -- | -- | -- | -- |
| 27... | -- | -- | -- | 1 | 129 | 1.0 | -- | 88 | -- | -- | -- | -- |
| 27... | -- | -- | -- | 0 | 129 | 1.6 | -- | 87 | -- | -- | -- | -- |
| 27... | 39 | 2.4 | 4.3 | 0 | 130 | 2.0 | 290 | 87 | 9.0 | 683 | .93 | .18 |
| 27... | -- | -- | -- | 0 | 131 | .6 | -- | 86 | -- | -- | -- | -- |
| 27... | 39 | 2.4 | 4.1 | 0 | 132 | 1.0 | 280 | 85 | 9.0 | 669 | .91 | .20 |
| 27... | -- | -- | -- | 0 | 134 | 1.0 | -- | 84 | -- | -- | -- | -- |
| 27... | -- | -- | -- | 0 | 137 | .5 | -- | 83 | -- | -- | -- | -- |
| 27... | -- | -- | -- | 0 | 134 | .5 | -- | 82 | -- | -- | -- | -- |
| 27... | 39 | 2.4 | 4.1 | 0 | 136 | .7 | 280 | 85 | 11 | 674 | .92 | .18 |
| 27... | -- | -- | -- | 0 | 136 | .5 | -- | 84 | -- | -- | -- | -- |
| JUN | | | | | | | | | | | | |
| 02... | 40 | 2.4 | 4.8 | 0 | 118 | 1.8 | 300 | 91 | 7.9 | 683 | .93 | .05 |
| 02... | -- | -- | -- | -- | 115 | .9 | -- | 91 | -- | -- | -- | -- |
| 02... | -- | -- | -- | -- | 120 | .9 | -- | 90 | -- | -- | -- | -- |
| 02... | -- | -- | -- | -- | 128 | 1.3 | -- | 89 | -- | -- | -- | -- |
| 02... | 39 | 2.4 | 4.5 | 0 | 128 | 5.0 | 300 | 89 | 8.8 | 693 | .94 | .18 |
| 02... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 02... | -- | -- | -- | -- | 131 | 8.1 | -- | 87 | -- | -- | -- | -- |
| 02... | 40 | 2.4 | 4.4 | 0 | 132 | 1.3 | 280 | 86 | 9.0 | 670 | .91 | .14 |
| 02... | -- | -- | -- | -- | 132 | 1.3 | -- | 86 | -- | -- | -- | -- |
| 02... | -- | -- | -- | -- | 133 | 1.3 | -- | 85 | -- | -- | -- | -- |
| 02... | 40 | 2.4 | 4.4 | 0 | 135 | 2.1 | 280 | 85 | 9.9 | 668 | .91 | .18 |
| 02... | -- | -- | -- | -- | 136 | 5.3 | -- | 84 | -- | -- | -- | -- |
| 29... | 39 | 2.4 | 4.7 | 0 | 116 | 1.1 | 300 | 92 | 8.6 | 687 | .93 | .05 |
| 29... | -- | -- | -- | 0 | 117 | 1.1 | -- | 94 | -- | -- | -- | -- |
| 29... | -- | -- | -- | 0 | 116 | 1.1 | -- | 93 | -- | -- | -- | -- |
| 29... | 39 | 2.4 | 4.6 | 0 | 127 | 3.9 | 290 | 92 | 8.6 | 686 | .93 | .14 |
| 29... | -- | -- | -- | 0 | 128 | 4.0 | -- | 92 | -- | -- | -- | -- |
| 29... | -- | -- | -- | 0 | 128 | 4.0 | -- | 92 | -- | -- | -- | -- |
| 29... | 39 | 2.4 | 4.5 | 0 | 130 | 2.5 | 280 | 89 | 9.3 | 676 | .92 | .16 |
| 29... | 39 | 2.4 | 4.5 | 0 | 132 | 4.1 | 280 | 88 | 9.6 | 674 | .92 | .16 |
| 29... | -- | -- | -- | 0 | 132 | 3.2 | -- | 86 | -- | -- | -- | -- |
| 29... | -- | -- | -- | 0 | 134 | 3.3 | -- | 87 | -- | -- | -- | -- |
| 29... | 40 | 2.4 | 4.2 | 0 | 134 | 3.3 | 270 | 86 | 11 | 661 | .90 | .14 |
| 29... | -- | -- | -- | 0 | 131 | 5.1 | -- | 89 | -- | -- | -- | -- |
| JUL | | | | | | | | | | | | |
| 27... | 42 | 2.7 | 4.8 | 0 | 109 | 1.1 | 300 | 93 | 8.0 | 690 | .94 | .05 |

09421000 LAKE MEAD AT HOOVER DAM, AZ-NV--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | SAMPLING DEPTH (FT) | ELEVATION ABOVE NGVD (FEET) | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | OXYGEN, DISSOLVED (MG/L) | HARDNESS (MG/L AS CACO3) | HARDNESS, NONCARBONATE (MG/L CACO3) | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| JUL | | | | | | | | | | | | |
| 27... | 0845 | 10 | 1173.00 | 1080 | 8.6 | 28.0 | 8.5 | -- | -- | -- | -- | -- |
| 27... | 0850 | 25 | 1158.00 | 1090 | 8.5 | 26.5 | 8.5 | -- | -- | -- | -- | -- |
| 27... | 0855 | 75 | 1108.00 | 1070 | 8.3 | 24.0 | 4.8 | -- | -- | -- | -- | -- |
| 27... | 0900 | 125 | 1058.00 | 1060 | 8.1 | 15.5 | 6.4 | 330 | 200 | 84 | 30 | 100 |
| 27... | 0905 | 175 | 1008.00 | 1070 | 8.1 | 14.0 | 7.0 | -- | -- | -- | -- | -- |
| 27... | 0915 | 225 | 958.00 | 1060 | 8.0 | 13.5 | 6.8 | 330 | 200 | 82 | 30 | 100 |
| 27... | 0930 | 275 | 908.00 | 1060 | 8.0 | 13.0 | 6.4 | -- | -- | -- | -- | -- |
| 27... | 0945 | 325 | 858.00 | 1060 | 8.0 | 13.0 | 6.4 | 320 | 190 | 81 | 29 | 100 |
| 27... | 1000 | 375 | 808.00 | 1060 | 8.0 | 13.0 | 6.2 | -- | -- | -- | -- | -- |
| 27... | 1015 | 425 | 758.00 | 1060 | 7.9 | 13.0 | 5.8 | 320 | 190 | 81 | 29 | 100 |
| 27... | 1030 | 468 | 715.00 | 1060 | 7.9 | 13.0 | 5.3 | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | | | | |
| 30... | 0830 | .0 | 1186.00 | 1060 | 8.6 | 28.5 | 8.4 | 320 | 220 | 77 | 32 | 110 |
| 30... | 0845 | 10 | 1176.00 | 1080 | 8.4 | 26.5 | 8.4 | -- | -- | -- | -- | -- |
| 30... | 0900 | 25 | 1161.00 | 1100 | 8.4 | 26.0 | 7.8 | -- | -- | -- | -- | -- |
| 30... | 0915 | 75 | 1111.00 | 1080 | 7.8 | 20.5 | 3.0 | 340 | 210 | 83 | 31 | 110 |
| 30... | 0930 | 125 | 1061.00 | 1080 | 7.8 | 16.0 | 5.2 | -- | -- | -- | -- | -- |
| 30... | 0945 | 175 | 1011.00 | 1080 | 7.8 | 14.5 | 6.5 | 340 | 200 | 83 | 31 | 100 |
| 30... | 1000 | 225 | 961.00 | 1070 | 7.8 | 13.5 | 6.6 | -- | -- | -- | -- | -- |
| 30... | 1015 | 275 | 911.00 | 1060 | 7.8 | 13.0 | 6.6 | 330 | 200 | 82 | 30 | 100 |
| 30... | 1030 | 325 | 861.00 | 1060 | 7.8 | 13.0 | 6.4 | -- | -- | -- | -- | -- |
| 30... | 1100 | 375 | 811.00 | 1060 | 7.7 | 13.0 | 6.1 | -- | -- | -- | -- | -- |
| 30... | 1130 | 425 | 761.00 | 1060 | 7.8 | 13.0 | 5.6 | -- | -- | -- | -- | -- |
| 30... | 1200 | 450 | 736.00 | 1060 | 7.7 | 13.0 | 4.8 | 330 | 190 | 82 | 30 | 100 |
| 30... | 1230 | 468 | 718.00 | 1060 | 7.7 | 13.0 | 4.4 | -- | -- | -- | -- | -- |
| SEP | | | | | | | | | | | | |
| 28... | 0930 | .0 | 1185.00 | 1100 | 8.5 | 25.5 | 9.0 | 330 | 220 | 80 | 32 | 110 |
| 28... | 0935 | 10 | 1175.00 | 1110 | 8.7 | 25.0 | 9.0 | 330 | 220 | -- | -- | -- |
| 28... | 0945 | 25 | 1160.00 | 1080 | 8.5 | 25.0 | 8.4 | 330 | 220 | -- | -- | -- |
| 28... | 1020 | 75 | 1110.00 | 1080 | 8.0 | 21.0 | 1.9 | 340 | 210 | 83 | 31 | 100 |
| 28... | 1040 | 125 | 1060.00 | 1070 | 7.8 | 18.0 | 3.8 | 340 | 210 | -- | -- | -- |
| 28... | 1050 | 175 | 1010.00 | 1070 | 7.8 | 15.5 | 5.4 | 340 | 210 | -- | -- | -- |
| 28... | 1110 | 225 | 960.00 | 1070 | 8.1 | 14.5 | 6.2 | 340 | 210 | -- | -- | -- |
| 28... | 1120 | 275 | 910.00 | 1060 | 8.0 | 13.5 | 6.4 | 330 | 200 | 83 | 30 | 99 |
| 28... | 1135 | 325 | 860.00 | 1060 | 7.7 | 13.0 | 6.1 | 330 | 200 | -- | -- | -- |
| 28... | 1145 | 375 | 810.00 | 1060 | 7.9 | 13.0 | 5.8 | 330 | 200 | -- | -- | -- |
| 28... | 1200 | 425 | 760.00 | 1060 | 7.8 | 13.0 | 5.3 | 330 | 200 | -- | -- | -- |
| 28... | 1215 | 450 | 735.00 | 1060 | 7.8 | 13.0 | 4.5 | 330 | 190 | 82 | 30 | 98 |
| 28... | 1230 | 471 | 714.00 | 1060 | 7.8 | 13.0 | 3.8 | 330 | 190 | -- | -- | -- |

09421000 LAKE MEAD AT HOOVER DAM, AZ-NV--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | SODIUM PERCENT | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | CAR-BONATE (MG/L AS CO3) | ALKA-LINITY (MG/L AS CACO3) | CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER AC-FT) | NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| JUL | | | | | | | | | | | | |
| 27... | -- | -- | -- | 0 | 110 | .5 | -- | 93 | -- | -- | -- | -- |
| 27... | -- | -- | -- | 0 | 110 | .7 | -- | 93 | -- | -- | -- | -- |
| 27... | -- | -- | -- | 0 | 125 | 1.2 | -- | 91 | -- | -- | -- | -- |
| 27... | 39 | 2.4 | 4.7 | 0 | 130 | 2.0 | 290 | 90 | 8.9 | 687 | .93 | .14 |
| 27... | -- | -- | -- | 0 | 131 | 2.0 | -- | 88 | -- | -- | -- | -- |
| 27... | 39 | 2.4 | 4.5 | 0 | 132 | 2.6 | 280 | 87 | 9.1 | 673 | .92 | .14 |
| 27... | -- | -- | -- | 0 | 134 | 2.6 | -- | 86 | -- | -- | -- | -- |
| 27... | 40 | 2.4 | 4.3 | 0 | 135 | 2.6 | 270 | 86 | 9.3 | 662 | .90 | .11 |
| 27... | -- | -- | -- | 0 | 135 | 2.6 | -- | 85 | -- | -- | -- | -- |
| 27... | 40 | 2.4 | 4.3 | 0 | 136 | 3.3 | 280 | 85 | 9.4 | 671 | .91 | .16 |
| 27... | -- | -- | -- | 0 | 137 | 3.4 | -- | 85 | -- | -- | -- | -- |
| AUG | | | | | | | | | | | | |
| 30... | 42 | 2.7 | 5.2 | 0 | 108 | .5 | 310 | 97 | 9.0 | 706 | .96 | .05 |
| 30... | -- | -- | -- | 0 | 108 | .8 | -- | 97 | -- | -- | -- | -- |
| 30... | -- | -- | -- | 0 | 108 | .8 | -- | 97 | -- | -- | -- | -- |
| 30... | 41 | 2.6 | 4.9 | 0 | 125 | 3.9 | 300 | 93 | 8.0 | 706 | .96 | .14 |
| 30... | -- | -- | -- | 0 | 129 | 4.0 | -- | 91 | -- | -- | -- | -- |
| 30... | 39 | 2.4 | 4.8 | 0 | 130 | 4.0 | 290 | 90 | 9.0 | 687 | .93 | .16 |
| 30... | -- | -- | -- | 0 | 132 | 4.1 | -- | 90 | -- | -- | -- | -- |
| 30... | 39 | 2.4 | 4.6 | 0 | 134 | 4.1 | 280 | 87 | 9.0 | 674 | .92 | .18 |
| 30... | -- | -- | -- | 0 | 135 | 4.2 | -- | 86 | -- | -- | -- | -- |
| 30... | -- | -- | -- | 0 | 136 | 5.3 | -- | 86 | -- | -- | -- | -- |
| 30... | -- | -- | -- | 0 | 137 | 4.2 | -- | 86 | -- | -- | -- | -- |
| 30... | 39 | 2.4 | 4.5 | 0 | 138 | 5.4 | 270 | 86 | 9.0 | 665 | .90 | .09 |
| 30... | -- | -- | -- | 0 | 131 | 5.1 | -- | 87 | -- | -- | -- | -- |
| SEP | | | | | | | | | | | | |
| 28... | 41 | 2.6 | 4.9 | 0 | 112 | .7 | 320 | 96 | 8.6 | 719 | .98 | .02 |
| 28... | -- | -- | -- | 0 | 112 | .4 | -- | 96 | -- | -- | -- | -- |
| 28... | -- | -- | -- | 0 | 112 | .7 | -- | 95 | -- | -- | -- | -- |
| 28... | 39 | 2.4 | 4.7 | 0 | 124 | 2.4 | 300 | 92 | 8.4 | 694 | .94 | .09 |
| 28... | -- | -- | -- | 0 | 129 | 4.0 | -- | 91 | -- | -- | -- | -- |
| 28... | -- | -- | -- | 0 | 130 | 4.0 | -- | 89 | -- | -- | -- | -- |
| 28... | -- | -- | -- | 0 | 130 | 2.0 | -- | 89 | -- | -- | -- | -- |
| 28... | 39 | 2.4 | 4.3 | 0 | 133 | 2.6 | 280 | 87 | 9.3 | 673 | .92 | .16 |
| 28... | -- | -- | -- | 0 | 134 | 5.2 | -- | 86 | -- | -- | -- | -- |
| 28... | -- | -- | -- | 0 | 135 | 3.3 | -- | 85 | -- | 330 | .45 | -- |
| 28... | -- | -- | -- | 0 | 133 | 4.1 | -- | 87 | -- | -- | -- | -- |
| 28... | 39 | 2.4 | 4.3 | 0 | 136 | 4.2 | 280 | 85 | 9.8 | 672 | .91 | .14 |
| 28... | -- | -- | -- | 0 | 139 | 4.3 | -- | 85 | -- | -- | -- | -- |

## 09421500 COLORADO RIVER BELOW HOOVER DAM, AZ-NV
(National stream-quality accounting network station)

LOCATION.--Lat 36°00'55", long 114°44'16", in NE¼SW¼ sec.3, T.30 N., R.23 W., Gila and Salt River meridian, or SW¼NE¼ sec.29, T.22 S., R.65 E., Mount Diablo meridian, Mohave-Clark Counties, Hydrologic Unit 15030101, in powerhouse at downstream side of Hoover Dam.

DRAINAGE AREA.--171,700 $mi^2$ (444,700 $km^2$), approximately, including 3,959 $mi^2$ (10,254 $km^2$) in Great Divide basin in southern Wyoming, which is noncontributing (previously considered part of the Missouri River basin).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1933 to current year (prior to April 1934, monthly discharge only, published in WSP 1313). Published as "near Willow Beach" 1933-39 and as "below Boulder Dam" 1939-45.

GAGE.--Totalizing flowmeters on each turbine in Hoover Dam powerhouse. Prior to Nov. 1, 1939, water-stage recorder at site 9 mi (14 km) downstream at datum 594.8 ft (181.30 m) National Geodetic Vertical Datum of 1929. Nov. 1, 1939, to June 30, 1958, water-stage recorder at site 0.8 mi (1.3 km) downstream at datum 600.35 ft (182.987 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Flow regulated by Lake Mead since Feb. 1, 1935. Many diversions above station for irrigation, industrial, and municipal use.

COOPERATION.--Records furnished by Bureau of Reclamation.

AVERAGE DISCHARGE.--44 years (water years 1935-78), 13,210 $ft^3/s$ (374.1 $m^3/s$), 9,571,000 acre-ft/yr (11,800 $hm^3/yr$), unadjusted for storage in Lake Mead.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 36,000 $ft^3/s$ (1,020 $m^3/s$) Jan. 28, 1942; no flow at Hoover Dam part of Feb. 10, 1935; minimum daily, 152 $ft^3/s$ (4.30 $m^3/s$) Feb. 10, 1935.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 22,300 $ft^3/s$ (632 $m^3/s$) May 4; minimum daily, 1,560 $ft^3/s$ (44.2 $m^3/s$) Jan. 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 6990 | 5000 | 11500 | 2180 | 6160 | 15900 | 7010 | 19100 | 11700 | 7500 | 15400 | 15200 |
| 2 | 5090 | 6900 | 11100 | 2820 | 3720 | 14600 | 6160 | 16500 | 10200 | 5600 | 13300 | 10200 |
| 3 | 9160 | 6480 | 4310 | 8530 | 3780 | 10700 | 14300 | 19500 | 4850 | 8600 | 11500 | 9660 |
| 4 | 8740 | 7850 | 3300 | 7980 | 3060 | 6700 | 16100 | 22300 | 3630 | 7430 | 14900 | 6280 |
| 5 | 7800 | 4360 | 10000 | 6370 | 3630 | 5180 | 16900 | 18400 | 14500 | 12700 | 12500 | 8900 |
| 6 | 8750 | 3930 | 10400 | 3670 | 5010 | 5200 | 19600 | 8120 | 16700 | 16400 | 6260 | 7240 |
| 7 | 11600 | 6100 | 12300 | 2290 | 6850 | 8460 | 19200 | 4650 | 11800 | 17300 | 15700 | 10500 |
| 8 | 5210 | 6570 | 14000 | 1620 | 5950 | 9250 | 12100 | 19700 | 13900 | 12300 | 18700 | 10800 |
| 9 | 3950 | 10400 | 16000 | 3780 | 8820 | 8920 | 6240 | 21100 | 15000 | 9570 | 13600 | 6430 |
| 10 | 11900 | 9540 | 6240 | 3510 | 6320 | 9300 | 16100 | 19300 | 4360 | 15700 | 16900 | 4640 |
| 11 | 9720 | 6760 | 5100 | 4270 | 4820 | 7500 | 19500 | 15100 | 5150 | 13600 | 13200 | 10700 |
| 12 | 9560 | 2600 | 12200 | 3910 | 5210 | 7650 | 18100 | 19500 | 12900 | 14200 | 10100 | 9050 |
| 13 | 6250 | 2380 | 11400 | 3630 | 7700 | 13700 | 18900 | 12700 | 13900 | 15300 | 6470 | 9180 |
| 14 | 10000 | 7930 | 14900 | 3760 | 5640 | 13400 | 18500 | 4090 | 13300 | 16800 | 12800 | 10300 |
| 15 | 6420 | 6060 | 15300 | 3260 | 5380 | 16400 | 8990 | 13800 | 10900 | 8870 | 19400 | 16400 |
| 16 | 3570 | 8010 | 10800 | 7690 | 5160 | 18400 | 6770 | 14000 | 11600 | 7120 | 16800 | 10100 |
| 17 | 9360 | 10800 | 6410 | 4330 | 6550 | 15400 | 17100 | 13400 | 7570 | 13400 | 19800 | 6840 |
| 18 | 10300 | 11100 | 6600 | 3870 | 4260 | 10800 | 19700 | 16500 | 6280 | 17600 | 21500 | 13700 |
| 19 | 9110 | 7580 | 13900 | 3170 | 2810 | 7780 | 16700 | 15100 | 14800 | 16600 | 14200 | 12500 |
| 20 | 8540 | 5910 | 12700 | 1800 | 2900 | 14700 | 19200 | 6490 | 13600 | 17200 | 9930 | 14800 |
| 21 | 8640 | 10800 | 10700 | 2170 | 9650 | 14200 | 21400 | 8620 | 13200 | 14000 | 17500 | 15200 |
| 22 | 1640 | 11800 | 10300 | 1700 | 16100 | 15100 | 12300 | 13900 | 12300 | 10000 | 17400 | 16800 |
| 23 | 2450 | 12000 | 6090 | 2810 | 17800 | 15900 | 7300 | 14800 | 14900 | 11500 | 16900 | 11200 |
| 24 | 7480 | 3600 | 4330 | 2450 | 15400 | 12700 | 20600 | 15100 | 8280 | 19000 | 14600 | 12900 |
| 25 | 10500 | 10500 | 3740 | 4860 | 8370 | 8880 | 18600 | 17200 | 4560 | 18600 | 16500 | 16400 |
| 26 | 3770 | 5530 | 3830 | 4460 | 9440 | 5940 | 18800 | 15400 | 10500 | 20900 | 6110 | 16600 |
| 27 | 4010 | 5110 | 9360 | 4930 | 17400 | 17900 | 21500 | 9480 | 9560 | 18600 | 6340 | 13900 |
| 28 | 4690 | 12700 | 10600 | 1560 | 18500 | 14000 | 20700 | 7800 | 11900 | 17100 | 17200 | 17600 |
| 29 | 2270 | 11400 | 7230 | 1610 | --- | 16300 | 11300 | 7960 | 12900 | 10300 | 16800 | 15600 |
| 30 | 1980 | 13500 | 5440 | 4820 | --- | 14700 | 4920 | 11700 | 15000 | 8100 | 17000 | 7410 |
| 31 | 6550 | --- | 3640 | 4620 | --- | 17700 | --- | 12200 | --- | 16900 | 20500 | --- |
| TOTAL | 216000 | 233200 | 283720 | 118430 | 216390 | 373260 | 454590 | 433510 | 329740 | 418790 | 449810 | 347030 |
| MEAN | 6968 | 7773 | 9152 | 3820 | 7728 | 12040 | 15150 | 13980 | 10990 | 13510 | 14510 | 11570 |
| MAX | 11900 | 13500 | 16000 | 8530 | 18500 | 18400 | 21500 | 22300 | 16700 | 20900 | 21500 | 17600 |
| MIN | 1640 | 2380 | 3300 | 1560 | 2810 | 5180 | 4920 | 4090 | 3630 | 5600 | 6110 | 4640 |
| AC-FT | 428400 | 462600 | 562800 | 234900 | 429200 | 740400 | 901700 | 859900 | 654000 | 830700 | 892200 | 688300 |

CAL YR 1977 TOTAL 3969260 MEAN 10870 MAX 25000 MIN 1390 AC-FT 7873000
WTR YR 1978 TOTAL 3874470 MEAN 10610 MAX 22300 MIN 1560 AC-FT 7685000

09421500 COLORADO RIVER BELOW HOOVER DAM, AZ-NV--Continued

WATER-QUALITY RECORDS

LOCATION.--Lat 36°00'38", long 114°44'31", in SW¼SW¼ sec.3, T.30 N., R.23 W., Gila and Salt River meridian, Mohave County, Ariz., or in SW¼SE¼ sec.29, T.22 S., R.65 E., Mount Diablo meridian, Clark County, Nev., 0.3 mi (0.5 km) downstream from gaging station in powerhouse at downstream side of Hoover Dam.

DRAINAGE AREA.--171,800 $mi^2$ (445,000 $km^2$), approximately, including 3,959 $mi^2$ (10,254 $km^2$) in Great Divide basin in southern Wyoming which is noncontributing (previously considered part of the Missouri River basin).

PERIOD OF RECORD.--October 1939 to September 1962, October 1963 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: October 1941 to September 1957.

REMARKS.--Unpublished chemical analyses for period October 1939 to September 1940, available from district office in Tucson, Ariz.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | TUR-BID-ITY (JTU) | TUR-BID-ITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) | COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) | STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) | HARD-NESS (MG/L AS CACO3) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 04... | 0800 | 3920 | 1060 | 6.9 | 12.5 | 1 | -- | -- | -- | -- | -- | 310 |
| 05... | 0800 | 4220 | -- | -- | 13.5 | -- | -- | 6.6 | -- | 1 | 1 | -- |
| NOV | | | | | | | | | | | | |
| 08... | 0900 | 3870 | 1060 | 8.0 | 12.0 | 1 | -- | 9.1 | -- | -- | -- | 310 |
| 09... | 0800 | 2770 | -- | -- | -- | -- | -- | -- | -- | 1 | 1 | -- |
| DEC | | | | | | | | | | | | |
| 06... | 0800 | 7980 | 1050 | 8.0 | 12.0 | 1 | -- | 7.1 | -- | -- | -- | 340 |
| 07... | 0800 | 11600 | -- | -- | 12.5 | -- | -- | -- | -- | 2 | 1 | -- |
| JAN | | | | | | | | | | | | |
| 10... | 0800 | 3370 | 1040 | 7.9 | 13.0 | 1 | -- | 8.2 | -- | -- | -- | 340 |
| 11... | 0800 | 2050 | -- | -- | 12.5 | -- | -- | -- | -- | 3 | 1 | -- |
| FEB | | | | | | | | | | | | |
| 07... | 0830 | 7090 | 1060 | 8.1 | 12.0 | 1 | -- | 6.5 | -- | -- | -- | 330 |
| 08... | 0830 | 4850 | -- | -- | 12.0 | -- | -- | -- | -- | 1 | 1 | -- |
| MAR | | | | | | | | | | | | |
| 07... | 0815 | 9600 | 1080 | 8.2 | 12.5 | 1 | -- | 8.5 | -- | -- | -- | 340 |
| 08... | 0800 | 1870 | -- | -- | -- | -- | -- | -- | -- | 1 | 5 | -- |
| APR | | | | | | | | | | | | |
| 11... | 0800 | 19900 | 1080 | 7.9 | 12.0 | 1 | -- | 6.5 | -- | -- | -- | 340 |
| 12... | 0800 | 18000 | -- | -- | -- | -- | -- | -- | -- | 1 | 1 | -- |
| MAY | | | | | | | | | | | | |
| 09... | 0800 | 29400 | 1060 | 8.1 | 13.0 | 0 | -- | 7.3 | -- | -- | -- | 340 |
| 10... | 0730 | 21400 | -- | -- | 12.5 | -- | -- | -- | -- | 1 | 1 | -- |
| JUN | | | | | | | | | | | | |
| 13... | 0730 | 10900 | 1070 | 8.0 | 13.0 | -- | .40 | 7.7 | 35 | -- | -- | 350 |
| 14... | 0715 | 7760 | -- | -- | 13.0 | -- | -- | -- | -- | 1 | 1 | -- |
| JUL | | | | | | | | | | | | |
| 11... | 0800 | 9090 | 1080 | 8.0 | 13.0 | -- | .40 | 7.8 | 9 | -- | -- | 340 |
| 12... | 0800 | 9910 | -- | -- | 13.0 | -- | -- | -- | -- | 3 | 1 | -- |
| AUG | | | | | | | | | | | | |
| 08... | 0800 | 10800 | 1070 | 7.7 | 13.5 | -- | .25 | 7.3 | 95 | -- | -- | 340 |
| 09... | 0800 | 8920 | -- | -- | 13.0 | -- | -- | -- | -- | 1 | 3 | -- |
| SEP | | | | | | | | | | | | |
| 12... | 0800 | 4580 | 1080 | 8.4 | 13.0 | -- | 1.3 | 7.2 | 3 | -- | -- | 330 |
| 13... | 0800 | 5480 | -- | -- | 13.0 | -- | -- | -- | -- | 2 | 1 | -- |

09421500 COLORADO RIVER BELOW HOOVER DAM, AZ-NV--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | HARDNESS, NONCARBONATE (MG/L CACO3) | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) | SODIUM ADSORPTION RATIO | POTASSIUM, DISSOLVED (MG/L AS K) | BICARBONATE (MG/L AS HCO3) | CARBONATE (MG/L AS CO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 04... | 180 | 80 | 27 | 96 | 2.4 | 4.5 | 160 | 0 | 280 | 85 | .1 | 9.4 |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | | | | | | | |
| 08... | 180 | 79 | 28 | 95 | 2.3 | 4.5 | 160 | 0 | 280 | 74 | .4 | 9.7 |
| 09... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| DEC | | | | | | | | | | | | |
| 06... | 210 | 84 | 31 | 98 | 2.3 | 4.9 | 160 | 0 | 280 | 83 | .2 | 10 |
| 07... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JAN | | | | | | | | | | | | |
| 10... | 220 | 86 | 31 | 97 | 2.3 | 4.6 | 150 | 0 | 280 | 85 | .4 | 9.6 |
| 11... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | | | | | | | |
| 07... | 200 | 82 | 30 | 99 | 2.4 | 4.6 | 160 | 0 | 270 | 83 | .5 | 10 |
| 08... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MAR | | | | | | | | | | | | |
| 07... | 210 | 85 | 31 | 98 | 2.3 | 5.3 | 160 | 0 | 290 | 92 | .4 | 8.9 |
| 08... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| APR | | | | | | | | | | | | |
| 11... | 200 | 85 | 30 | 100 | 2.4 | 5.3 | 170 | 0 | 280 | 84 | .3 | 9.0 |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MAY | | | | | | | | | | | | |
| 09... | 210 | 88 | 30 | 95 | 2.2 | 5.2 | 160 | 0 | 280 | 87 | .3 | 9.1 |
| 10... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUN | | | | | | | | | | | | |
| 13... | -- | 89 | 30 | 100 | 2.3 | 5.1 | -- | -- | 280 | 110 | .3 | 8.9 |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | | | | |
| 11... | -- | 83 | 31 | 100 | 2.4 | 5.0 | -- | -- | 280 | 91 | .7 | 9.2 |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | | | | |
| 08... | -- | 83 | 31 | 100 | 2.4 | 4.8 | -- | -- | 290 | 88 | .4 | 8.9 |
| 09... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| SEP | | | | | | | | | | | | |
| 12... | -- | 84 | 28 | 100 | 2.4 | 4.8 | -- | -- | 290 | 90 | .4 | 9.8 |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

| DATE | SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | SOLIDS, DISSOLVED (TONS PER AC-FT) | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) | NITROGEN, AMMONIA TOTAL (MG/L AS N) | NITROGEN, ORGANIC TOTAL (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | NITROGEN, TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | PHOSPHORUS, DISSOLVED (MG/L AS P) | PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 04... | 691 | 662 | .94 | .33 | .36 | .00 | -- | -- | -- | .01 | .01 | .01 |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | | | | | | | |
| 08... | 694 | 652 | .94 | .35 | .41 | .02 | -- | -- | -- | .01 | .01 | .01 |
| 09... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| DEC | | | | | | | | | | | | |
| 06... | 696 | 672 | .95 | .42 | .42 | .00 | -- | -- | -- | .00 | .00 | .04 |
| 07... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JAN | | | | | | | | | | | | |
| 10... | 695 | 670 | .95 | .43 | .45 | .01 | -- | -- | -- | .02 | .02 | .02 |
| 11... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | | | | | | | |
| 07... | 677 | 660 | .92 | .41 | .41 | .01 | .16 | .17 | .58 | .02 | .02 | .01 |
| 08... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MAR | | | | | | | | | | | | |
| 07... | 696 | 691 | .95 | .29 | .34 | .00 | .32 | .32 | .61 | .02 | .02 | .05 |
| 08... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| APR | | | | | | | | | | | | |
| 11... | 690 | 679 | .94 | .40 | .41 | .01 | .36 | .37 | .77 | .03 | .02 | .02 |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MAY | | | | | | | | | | | | |
| 09... | 690 | 676 | .94 | .35 | .43 | .00 | .52 | .52 | .87 | .00 | .02 | .01 |
| 10... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUN | | | | | | | | | | | | |
| 13... | 692 | 708 | .94 | .44 | .40 | .03 | .84 | .87 | 1.3 | .00 | .01 | .00 |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | | | | |
| 11... | 702 | 679 | .95 | .35 | .40 | .00 | .31 | .31 | .66 | .00 | .00 | .01 |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | | | | |
| 08... | 717 | 686 | .98 | .40 | .40 | .02 | .32 | .34 | .74 | .01 | .01 | .09 |
| 09... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| SEP | | | | | | | | | | | | |
| 12... | 712 | 686 | .97 | .40 | .41 | .00 | .37 | .37 | .77 | .02 | .02 | .02 |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

09421500 COLORADO RIVER BELOW HOOVER DAM, AZ-NV--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | IRON, DIS-SOLVED (UG/L AS FE) | LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) | LEAD, DIS-SOLVED (UG/L AS PB) | MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) | MANGA-NESE, DIS-SOLVED (UG/L AS MN) | MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) | MERCURY DIS-SOLVED (UG/L AS HG) | SELE-NIUM, TOTAL (UG/L AS SE) | SELE-NIUM, DIS-SOLVED (UG/L AS SE) |
|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | |
| 08... | 10 | <100 | 15 | 4 | 4 | .0 | .0 | 5 | 0 |
| FEB | | | | | | | | | |
| 07... | 0 | 6 | 30 | 10 | 0 | .0 | .0 | 5 | 5 |
| MAY | | | | | | | | | |
| 09... | 20 | -- | -- | 10 | 10 | .1 | .0 | 1 | 2 |
| AUG | | | | | | | | | |
| 08... | 20 | -- | -- | 10 | 0 | .0 | .0 | 2 | 3 |

| DATE | ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) | ZINC, DIS-SOLVED (UG/L AS ZN) | CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) | CARBON, ORGANIC DIS-SOLVED (MG/L AS C) | ARSENIC TOTAL (UG/L AS AS) | ARSENIC DIS-SOLVED (UG/L AS AS) | BORON, TOTAL RECOV-ERABLE (UG/L AS B) | BORON, DIS-SOLVED (UG/L AS B) | CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) |
|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | |
| 08... | 30 | 10 | -- | -- | 6 | 6 | 160 | 130 | <10 |
| FEB | | | | | | | | | |
| 07... | 20 | 20 | .1 | 2.7 | 3 | 3 | 180 | 130 | 2 |
| MAY | | | | | | | | | |
| 09... | 40 | 10 | .1 | 2.4 | 3 | 4 | 220 | 130 | -- |
| AUG | | | | | | | | | |
| 08... | 20 | 20 | .1 | 3.0 | 3 | 3 | 160 | 150 | -- |

< Actual value is known to be less than value shown.

09421500 COLORADO RIVER BELOW HOOVER DAM, AZ-NV--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | CADMIUM DIS-SOLVED (UG/L AS CD) | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) | CHRO-MIUM, DIS-SOLVED (UG/L AS CR) | COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) | COBALT, DIS-SOLVED (UG/L AS CO) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) | COPPER, DIS-SOLVED (UG/L AS CU) | IRON, TOTAL RECOV-ERABLE (UG/L AS FE) |
|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | |
| 08... | 1 | 4 | 5 | <50 | 0 | <10 | 2 | 0 |
| FEB | | | | | | | | |
| 07... | 3 | 10 | 0 | 0 | 0 | 4 | 1 | 10 |
| MAY | | | | | | | | |
| 09... | -- | 0 | 10 | 0 | 0 | 4 | 0 | 30 |
| AUG | | | | | | | | |
| 08... | -- | 0 | 0 | 2 | 1 | 5 | 2 | 20 |

| DATE | TIME | PHYTO-PLANK-TON, TOTAL (CELLS PER ML) | PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M | PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M | SEDI-MENT, SUS-PENDED (MG/L) | SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) | SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM |
|---|---|---|---|---|---|---|---|
| NOV | | | | | | | |
| 08... | 0900 | 42 | .236 | .157 | 1 | 23 | 65 |
| FEB | | | | | | | |
| 07... | 0830 | 450 | -- | -- | 1 | 19 | 50 |
| MAY | | | | | | | |
| 09... | 0800 | 78 | 18.0 | 14.2 | 2 | 159 | 89 |
| JUN | | | | | | | |
| 13... | 0730 | 22 | -- | -- | 1 | 29 | 76 |
| JUL | | | | | | | |
| 11... | 0800 | 1900 | -- | -- | 3 | 74 | 86 |
| SEP | | | | | | | |
| 12... | 0800 | 28 | -- | -- | 1 | 12 | 100 |

< Actual value is known to be less than value shown.

09421500 COLORADO RIVER BELOW HOOVER DAM, AZ-NV--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

PHYTOPLANKTON

| DATE | NOV 8,77 | | FEB 7,78 | | MAY 9,78 | | JUN 13,78 | |
|---|---|---|---|---|---|---|---|---|
| TIME | 0900 | | 0830 | | 0800 | | 0730 | |
| TOTAL CELLS/ML | 42 | | 450 | | 78 | | 22 | |
| DIVERSITY: DIVISION | 0.5 | | 0.0 | | 0.0 | | 0.0 | |
| .CLASS | 0.5 | | 0.0 | | 0.0 | | 0.0 | |
| ..ORDER | 1.4 | | 0.0 | | 0.0 | | 0.0 | |
| ...FAMILY | 2.2 | | 0.0 | | 0.9 | | 0.0 | |
| ....GENUS | 2.2 | | 0.0 | | 0.9 | | 0.0 | |
| ORGANISM | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT |
| CHLOROPHYTA (GREEN ALGAE) | | | | | | | | |
| .CHLOROPHYCEAE | | | | | | | | |
| ..CHLOROCOCCALES | | | | | | | | |
| ...OOCYSTACEAE | | | | | | | | |
| ....DICTYOSPHAERIUM | -- | - | -- | - | -- | - | -- | - |
| ....TETRAEDRON | 5 | 11 | -- | - | -- | - | -- | - |
| CHRYSOPHYTA | | | | | | | | |
| .BACILLARIOPHYCEAE | | | | | | | | |
| ..CENTRALES | | | | | | | | |
| ...COSCINODISCACEAE | | | | | | | | |
| ....CYCLOTELLA | 14# | 33 | -- | - | -- | - | -- | - |
| ..PENNALES | | | | | | | | |
| ...ACHNANTHACEAE | | | | | | | | |
| ....ACHNANTHES | -- | - | -- | - | -- | - | -- | - |
| ....COCCONEIS | 5 | 11 | -- | - | -- | - | -- | - |
| ...FRAGILARIACEAE | | | | | | | | |
| ....SYNEDRA | 9# | 22 | -- | - | 26# | 33 | -- | - |
| ...NAVICULACEAE | | | | | | | | |
| ....NAVICULA | 9# | 22 | -- | - | 52# | 67 | 22# | 100 |
| ...NITZSCHIACEAE | | | | | | | | |
| ....NITZSCHIA | -- | - | -- | - | -- | - | -- | - |
| CYANOPHYTA (BLUE-GREEN ALGAE) | | | | | | | | |
| .CYANOPHYCEAE | | | | | | | | |
| ..HORMOGONALES | | | | | | | | |
| ...NOSTOCACEAE | | | | | | | | |
| ....ANABAENOPSIS | -- | - | -- | - | -- | - | -- | - |
| ...OSCILLATORIACEAE | -- | - | 450# | 100 | -- | - | -- | - |
| ....LYNGBYA | -- | - | -- | - | -- | - | -- | - |
| ....OSCILLATORIA | -- | - | -- | - | -- | - | -- | - |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

09421500 COLORADO RIVER BELOW HOOVER DAM, AZ-NV--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | JUL 11,78 | | AUG 8,78 | | SEP 12,78 | |
|---|---|---|---|---|---|---|
| TIME | 0800 | | 0800 | | 0800 | |
| TOTAL CELLS/ML | 1900 | | 1800 | | 28 | |
| DIVERSITY: DIVISION | 0.1 | | 0.0 | | 0.0 | |
| .CLASS | 0.1 | | 0.0 | | 0.0 | |
| ..ORDER | 0.1 | | 0.0 | | 0.0 | |
| ...FAMILY | 0.1 | | 0.1 | | 1.0 | |
| ....GENUS | 0.1 | | 0.1 | | 1.0 | |
| ORGANISM | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT |
| CHLOROPHYTA (GREEN ALGAE) | | | | | | |
| .CHLOROPHYCEAE | | | | | | |
| ..CHLOROCOCCALES | | | | | | |
| ...OOCYSTACEAE | | | | | | |
| ....DICTYOSPHAERIUM | -- | - | * | 0 | -- | - |
| ....TETRAEDRON | -- | - | -- | - | -- | - |
| CHRYSOPHYTA | | | | | | |
| .BACILLARIOPHYCEAE | | | | | | |
| ..CENTRALES | | | | | | |
| ...COSCINODISCACEAE | | | | | | |
| ....CYCLOTELLA | -- | - | -- | - | -- | - |
| ..PENNALES | | | | | | |
| ...ACHNANTHACEAE | | | | | | |
| ....ACHNANTHES | 22 | 1 | -- | - | -- | - |
| ....COCCONEIS | -- | - | -- | - | -- | - |
| ...FRAGILARIACEAE | | | | | | |
| ....SYNEDRA | -- | - | -- | - | 14# | 50 |
| ...NAVICULACEAE | | | | | | |
| ....NAVICULA | -- | - | * | 0 | -- | - |
| ...NITZSCHIACEAE | | | | | | |
| ....NITZSCHIA | -- | - | * | 0 | 14# | 50 |
| CYANOPHYTA (BLUE-GREEN ALGAE) | | | | | | |
| .CYANOPHYCEAE | | | | | | |
| ..HORMOGONALES | | | | | | |
| ...NOSTOCACEAE | | | | | | |
| ....ANABAENOPSIS | -- | - | 11 | 1 | -- | - |
| ...OSCILLATORIACEAE | -- | - | -- | - | -- | - |
| ....LYNGBYA | -- | - | 1800# | 99 | -- | - |
| ....OSCILLATORIA | 1900# | 99 | -- | - | -- | - |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

## 09422500 LAKE MOHAVE AT DAVIS DAM, AZ-NV

LOCATION.--Lat 35°11'50", long 114°34'07", in SW¼SW¼ sec.18, T.21 N., R.21 W., Gila and Salt River meridian, Mohave County, Hydrologic Unit 15030101, on forebay structure on Arizona side of Davis Dam on Colorado River, 29 mi (47 km) west of Kingman, Ariz., and 67 mi (108 km) downstream from Hoover Dam.

DRAINAGE AREA.--173,300 mi² (448,800 km²), approximately, including 3,959 mi² (10,254 km²) in Great Divide basin in southern Wyoming, which is noncontributing (previously considered part of the Missouri River basin).

PERIOD OF RECORD.--January 1950 to current year.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929.

REMARKS.--Reservoir is formed by earthfill and rockfill dam; dam completed in April 1949 and storage began Jan. 17, 1950. Usable capacity, 1,810,000 acre-ft (2,230 hm³) between elevations 533.39 ft (162.577 m)—lowest point of penstock outlet—and 647.0 ft (197.21 m)—top of spillway gates. A small amount of additional storage is available through use of splashboards on the spillway gates. Dead storage, 8,530 acre-ft (10.5 hm³) below elevation 533.39 ft (162.577 m). Lake is used for power development, re-regulation for irrigation demand, and to satisfy requirements of the Treaty of 1944 with Mexico. Figures given herein represent usable contents.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 1,811,000 acre-ft (2,230 hm³) May 24, 1958, May 29, 1963; maximum elevation, 647.04 ft (197.218 m) May 29, 1963; minimum contents (since 1952), 1,168,000 acre-ft (1,440 hm³) Sept. 8, 1953, elevation, 622.15 ft (189.631 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 1,744,000 acre-ft (2,150 hm³) May 26, elevation, 644.64 ft (196.486 m); minimum contents, 1,347,000 acre-ft (1,660 hm³) Aug. 15, elevation 629.55 ft (191.887 m).

Capacity table (elevation, in feet, and usable contents, in acre-feet)

| | | | |
|---|---|---|---|
| 629 | 1,334,000 | 641 | 1,644,000 |
| 632 | 1,409,000 | 644 | 1,726,000 |
| 635 | 1,486,000 | 647 | 1,810,000 |
| 638 | 1,564,000 | | |

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
INSTANTANEOUS OBSERVATIONS AT 2400

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1461000 | 1434000 | 1503000 | 1636000 | 1682000 | 1675000 | 1599000 | 1621000 | 1716000 | 1494000 | 1390000 | 1452000 |
| 2 | 1456000 | 1434000 | 1509000 | 1631000 | 1686000 | 1699000 | 1589000 | 1629000 | 1711000 | 1478000 | 1386000 | 1447000 |
| 3 | 1458000 | 1432000 | 1503000 | 1637000 | 1687000 | 1716000 | 1583000 | 1644000 | 1696000 | 1459000 | 1382000 | 1446000 |
| 4 | 1458000 | 1434000 | 1497000 | 1644000 | 1684000 | 1721000 | 1584000 | 1663000 | 1680000 | 1443000 | 1383000 | 1437000 |
| 5 | 1455000 | 1430000 | 1499000 | 1650000 | 1685000 | 1723000 | 1583000 | 1676000 | 1681000 | 1437000 | 1378000 | 1434000 |
| 6 | 1467000 | 1426000 | 1503000 | 1652000 | 1686000 | 1724000 | 1593000 | 1667000 | 1688000 | 1439000 | 1365000 | 1428000 |
| 7 | 1481000 | 1425000 | 1512000 | 1650000 | 1690000 | 1725000 | 1600000 | 1655000 | 1692000 | 1442000 | 1363000 | 1425000 |
| 8 | 1476000 | 1427000 | 1524000 | 1646000 | 1695000 | 1722000 | 1592000 | 1668000 | 1698000 | 1433000 | 1370000 | 1421000 |
| 9 | 1470000 | 1431000 | 1540000 | 1647000 | 1699000 | 1710000 | 1585000 | 1684000 | 1702000 | 1426000 | 1372000 | 1408000 |
| 10 | 1481000 | 1437000 | 1538000 | 1651000 | 1698000 | 1701000 | 1583000 | 1704000 | 1697000 | 1421000 | 1376000 | 1397000 |
| 11 | 1483000 | 1434000 | 1534000 | 1655000 | 1694000 | 1688000 | 1586000 | 1717000 | 1666000 | 1419000 | 1376000 | 1396000 |
| 12 | 1492000 | 1426000 | 1546000 | 1659000 | 1693000 | 1686000 | 1590000 | 1732000 | 1662000 | 1419000 | 1369000 | 1391000 |
| 13 | 1496000 | 1418000 | 1553000 | 1660000 | 1694000 | 1687000 | 1596000 | 1732000 | 1663000 | 1423000 | 1359000 | 1387000 |
| 14 | 1503000 | 1418000 | 1566000 | 1659000 | 1692000 | 1684000 | 1598000 | 1717000 | 1662000 | 1425000 | 1353000 | 1390000 |
| 15 | 1497000 | 1416000 | 1583000 | 1662000 | 1688000 | 1685000 | 1583000 | 1714000 | 1652000 | 1411000 | 1359000 | 1397000 |
| 16 | 1488000 | 1420000 | 1585000 | 1646000 | 1678000 | 1696000 | 1574000 | 1721000 | 1644000 | 1401000 | 1362000 | 1394000 |
| 17 | 1491000 | 1430000 | 1581000 | 1678000 | 1672000 | 1692000 | 1574000 | 1725000 | 1631000 | 1394000 | 1375000 | 1389000 |
| 18 | 1496000 | 1439000 | 1581000 | 1683000 | 1652000 | 1682000 | 1575000 | 1736000 | 1618000 | 1394000 | 1387000 | 1394000 |
| 19 | 1499000 | 1442000 | 1596000 | 1685000 | 1639000 | 1676000 | 1574000 | 1740000 | 1612000 | 1396000 | 1387000 | 1400000 |
| 20 | 1500000 | 1442000 | 1607000 | 1684000 | 1616000 | 1671000 | 1576000 | 1726000 | 1605000 | 1399000 | 1397000 | 1408000 |
| 21 | 1500000 | 1448000 | 1613000 | 1684000 | 1607000 | 1663000 | 1588000 | 1720000 | 1602000 | 1395000 | 1403000 | 1419000 |
| 22 | 1484000 | 1456000 | 1618000 | 1683000 | 1612000 | 1657000 | 1581000 | 1719000 | 1601000 | 1381000 | 1408000 | 1431000 |
| 23 | 1477000 | 1465000 | 1626000 | 1683000 | 1617000 | 1652000 | 1573000 | 1721000 | 1599000 | 1378000 | 1414000 | 1428000 |
| 24 | 1475000 | 1461000 | 1635000 | 1682000 | 1621000 | 1647000 | 1583000 | 1726000 | 1581000 | 1383000 | 1414000 | 1438000 |
| 25 | 1482000 | 1468000 | 1639000 | 1687000 | 1611000 | 1634000 | 1591000 | 1736000 | 1566000 | 1388000 | 1419000 | 1444000 |
| 26 | 1475000 | 1465000 | 1640000 | 1688000 | 1611000 | 1625000 | 1599000 | 1744000 | 1549000 | 1401000 | 1406000 | 1453000 |
| 27 | 1467000 | --- | 1626000 | 1686000 | 1625000 | 1626000 | 1612000 | 1737000 | 1535000 | 1410000 | 1397000 | 1460000 |
| 28 | 1462000 | 1473000 | 1625000 | 1679000 | 1647000 | 1622000 | 1625000 | 1730000 | 1527000 | 1414000 | 1406000 | 1475000 |
| 29 | 1451000 | 1482000 | 1635000 | 1673000 | --- | 1621000 | 1622000 | 1723000 | 1521000 | 1415000 | 1415000 | 1487000 |
| 30 | 1443000 | 1494000 | 1640000 | 1672000 | --- | 1619000 | 1611000 | 1723000 | 1517000 | 1420000 | 1426000 | 1484000 |
| 31 | 1442000 | --- | 1638000 | 1676000 | --- | 1618000 | --- | 1721000 | --- | 1393000 | 1443000 | --- |
| MAX | 1503000 | --- | 1640000 | 1688000 | 1699000 | 1725000 | 1625000 | 1744000 | 1716000 | 1494000 | 1443000 | 1487000 |
| MIN | 1442000 | --- | 1497000 | 1631000 | 1607000 | 1618000 | 1573000 | 1621000 | 1517000 | 1378000 | 1353000 | 1387000 |
| (†) | 633.30 | 635.34 | 640.78 | 642.16 | 641.10 | 640.00 | 639.75 | 643.80 | 636.20 | 631.80 | 633.35 | 634.95 |
| (‡) | -23000 | +52000 | +144000 | +38000 | -29000 | -29000 | -7000 | +110000 | -204000 | -124000 | +50000 | +41000 |

CAL YR 1977 MAX 1793000 MIN 1385000 ‡ -78000
WTR YR 1978 MAX 1744000 MIN 1353000 ‡ +19000

† Elevation, in feet, at end of month.
‡ Change in contents, in acre-feet.

## COLORADO RIVER MAIN STEM

### 09423000 COLORADO RIVER BELOW DAVIS DAM, AZ-NV

LOCATION.--Lat 35°11'30", long 114°34'17", in SE¼NE¼ sec.1, T.32 S., R.66 E., Mount Diablo meridian, in Nevada, Clark County, Hydrologic Unit 15030101, on right bank 0.5 mi (0.8 km) downstream from Davis Dam, 29 mi (47 km) west of Kingman, Ariz., and 68 mi (109 km) downstream from Hoover Dam.

DRAINAGE AREA.--173,300 $mi^2$ (448,800 $km^2$), approximately, including 3,959 $mi^2$ (10,254 $km^2$) in Great Divide basin in southern Wyoming, which is noncontributing (previously considered part of the Missouri River basin).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1905 to September 1907 (published as "at Hardyville"), March 1949 to current year.

GAGE.--Water-stage recorder. Datum of gage is 500.00 ft (152.40 m) National Geodetic Vertical Datum of 1929; gage readings have been reduced to elevations NGVD. 1905-7, nonrecording gage at site 4.8 mi (7.7 km) downstream at datum about 13.4 ft (4.1 m) lower. Mar. 16 to May 3, 1949, water-stage recorder at site 0.5 mi (0.8 km) downstream at present datum. May 4, 1949, to Feb. 24, 1956, water-stage recorder at site 400 ft (120 m) upstream at present datum.

REMARKS.--Records excellent. Flow regulated by Lake Mead since Feb. 1, 1935, and by Lake Mohave since Jan. 17, 1950. Many diversions upstream for irrigation, industrial, and municipal uses.

AVERAGE DISCHARGE.--29 years (water years 1950-78), 12,450 $ft^3/s$ (352.6 $m^3/s$), 9,020,000 acre-ft/yr (11,100 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--1905-7: Maximum daily discharge, 116,000 $ft^3/s$ (3,290 $m^3/s$) June 20, 1906; minimum daily, 2,850 $ft^3/s$ (80.7 $m^3/s$) Jan. 5, 1906.

1949-78: Maximum discharge, 31,200 $ft^3/s$ (884 $m^3/s$) Apr. 22, 1952, elevation, 513.91 ft (156.640 m); no flow at Davis Dam parts of several days July to September 1950 and Dec. 27, 1950, when gates in dam were closed; minimum daily discharge, 285 $ft^3/s$ (8.07 $m^3/s$) Aug. 3, 1950.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 25,900 $ft^3/s$ (733 $m^3/s$) Mar. 23, elevation, 505.52 ft (154.082 m); minimum daily discharge, 2,150 $ft^3/s$ (60.9 $m^3/s$) Jan. 19, 20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 8830 | 8820 | 7630 | 4450 | 2210 | 4150 | 17700 | 13800 | 14900 | 18600 | 16700 | 14500 |
| 2 | 8030 | 7870 | 7750 | 5540 | 2220 | 2280 | 12400 | 12400 | 13900 | 13100 | 16000 | 12400 |
| 3 | 8890 | 7460 | 7960 | 4920 | 3690 | 2320 | 18100 | 11500 | 13400 | 19200 | 15800 | 11000 |
| 4 | 9100 | 7120 | 6320 | 4730 | 4300 | 5410 | 16900 | 12600 | 12400 | 16300 | 13100 | 11400 |
| 5 | 9080 | 6540 | 9120 | 3550 | 3360 | 5500 | 16700 | 12400 | 14600 | 16300 | 16400 | 10300 |
| 6 | 3310 | 6320 | 8200 | 3890 | 4020 | 5520 | 14300 | 12700 | 13500 | 15700 | 14200 | 12000 |
| 7 | 4900 | 7140 | 7960 | 3440 | 4250 | 8170 | 16600 | 12200 | 11200 | 16000 | 16100 | 12200 |
| 8 | 7260 | 6710 | 7300 | 3460 | 4560 | 11200 | 16700 | 14200 | 10900 | 18000 | 16200 | 13000 |
| 9 | 7410 | 7110 | 8170 | 3860 | 6770 | 16500 | 11900 | 12600 | 12800 | 13200 | 12600 | 13600 |
| 10 | 6970 | 6110 | 8260 | 2460 | 7900 | 14600 | 17200 | 9750 | 16900 | 19500 | 14900 | 11100 |
| 11 | 7950 | 7980 | 6360 | 2270 | 6980 | 15500 | 17500 | 10700 | 12800 | 16100 | 15400 | 11900 |
| 12 | 5260 | 7730 | 7240 | 2160 | 5610 | 9320 | 17100 | 12600 | 15600 | 15100 | 14900 | 11100 |
| 13 | 4260 | 6360 | 8400 | 3200 | 8690 | 13900 | 16800 | 13000 | 14500 | 13800 | 12200 | 11600 |
| 14 | 7020 | 7500 | 8140 | 4190 | 6760 | 14800 | 17100 | 11600 | 15000 | 17900 | 15400 | 10700 |
| 15 | 8730 | 7430 | 8440 | 2230 | 9210 | 16300 | 18500 | 16700 | 16200 | 17400 | 15700 | 12000 |
| 16 | 8680 | 5800 | 9320 | 2170 | 8890 | 11900 | 12100 | 12000 | 17100 | 13400 | 14400 | 11800 |
| 17 | 8750 | 5340 | 8610 | 2170 | 10500 | 17400 | 18400 | 10800 | 15100 | 18300 | 13200 | 10800 |
| 18 | 7830 | 5950 | 6440 | 2190 | 14700 | 17100 | 19000 | 11200 | 13000 | 18400 | 13600 | 11000 |
| 19 | 8310 | 6730 | 7340 | 2150 | 9770 | 11300 | 19600 | 13500 | 18100 | 17700 | 14200 | 10800 |
| 20 | 7390 | 6180 | 7390 | 2150 | 15800 | 17300 | 18400 | 14500 | 17200 | 15800 | 11400 | 9390 |
| 21 | 9440 | 6820 | 7060 | 2220 | 14900 | 18400 | 17300 | 12000 | 14900 | 16900 | 14400 | 9010 |
| 22 | 9800 | 7550 | 6870 | 2160 | 12700 | 19200 | 17600 | 14600 | 13200 | 18300 | 15900 | 9830 |
| 23 | 6460 | 7770 | 10000 | 3600 | 16200 | 19800 | 12400 | 14300 | 15900 | 14300 | 15600 | 13000 |
| 24 | 8560 | 6830 | 9780 | 2170 | 13400 | 17400 | 16900 | 12200 | 17200 | 16800 | 15000 | 7890 |
| 25 | 7650 | 5950 | 5650 | 2200 | 14800 | 16200 | 14700 | 12800 | 12800 | 16900 | 14700 | 13300 |
| 26 | 7740 | 6270 | 4960 | 4520 | 9640 | 11200 | 15100 | 11700 | 19300 | 14700 | 14600 | 11700 |
| 27 | 8290 | 5430 | 2510 | 5470 | 10200 | 16800 | 15500 | 13700 | 16500 | 14300 | 12700 | 10600 |
| 28 | 7790 | 6960 | 2390 | 5340 | 7000 | 16800 | 15000 | 11700 | 16200 | 15900 | 13200 | 9990 |
| 29 | 8380 | 6980 | 2360 | 4870 | --- | 16800 | 14500 | 12100 | 15100 | 15700 | 12400 | 9390 |
| 30 | 6360 | 6910 | 2920 | 5560 | --- | 16800 | 12100 | 13800 | 17000 | 13200 | 12100 | 8780 |
| 31 | 7740 | --- | 4600 | 2230 | --- | 18000 | --- | 13300 | --- | 16300 | 12300 | --- |
| TOTAL | 236170 | 205670 | 215450 | 105520 | 239030 | 407870 | 484100 | 392950 | 447200 | 503100 | 445300 | 336080 |
| MEAN | 7618 | 6856 | 6950 | 3404 | 8537 | 13160 | 16140 | 12680 | 14910 | 16230 | 14360 | 11200 |
| MAX | 9800 | 8820 | 10000 | 5560 | 16200 | 19800 | 19600 | 16700 | 19300 | 19500 | 16700 | 14500 |
| MIN | 3310 | 5340 | 2360 | 2150 | 2210 | 2280 | 11900 | 9750 | 10900 | 13100 | 11400 | 7890 |
| AC-FT | 468400 | 407900 | 427300 | 209300 | 474100 | 809000 | 960200 | 779400 | 887000 | 997900 | 883300 | 666600 |

CAL YR 1977 TOTAL 4121570 MEAN 11290 MAX 20600 MIN 2160 AC-FT 8175000
WTR YR 1978 TOTAL 4018440 MEAN 11010 MAX 19800 MIN 2150 AC-FT 7971000

09423000 COLORADO RIVER BELOW DAVIS DAM, AZ-NV--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--July 1969 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 03... | 1200 | 10100 | 1070 | 7.9 | 19.0 | 330 | 200 | 78 | 32 | 100 | 2.4 | 4.8 |
| NOV | | | | | | | | | | | | |
| 01... | 1425 | 13400 | 1080 | 7.8 | 16.0 | 340 | 210 | 84 | 31 | 110 | 2.6 | 5.0 |
| DEC | | | | | | | | | | | | |
| 01... | 1400 | 5170 | 1080 | 7.6 | 14.0 | 340 | 210 | 83 | 32 | 98 | 2.3 | 5.2 |
| JAN | | | | | | | | | | | | |
| 03... | 1000 | 5650 | 1070 | 7.8 | 12.0 | 330 | 210 | 82 | 30 | 100 | 2.4 | 4.9 |
| FEB | | | | | | | | | | | | |
| 01... | 0920 | 2160 | 1080 | 7.9 | 12.0 | 340 | 210 | 84 | 32 | 96 | 2.3 | 4.9 |
| MAR | | | | | | | | | | | | |
| 01... | 0930 | 9630 | 1070 | 8.0 | 12.0 | 340 | 200 | 83 | 31 | 100 | 2.4 | 4.8 |
| APR | | | | | | | | | | | | |
| 03... | 1130 | 24800 | 1080 | 7.7 | 14.5 | 340 | 200 | 88 | 30 | 100 | 2.3 | 5.4 |
| MAY | | | | | | | | | | | | |
| 01... | 1250 | 14200 | 1070 | 7.8 | 16.0 | 320 | 190 | 78 | 31 | 100 | 2.4 | 5.1 |
| JUN | | | | | | | | | | | | |
| 01... | 1340 | 19500 | 1070 | 8.0 | 19.0 | 330 | 190 | 84 | 28 | 100 | 2.4 | 5.5 |
| JUL | | | | | | | | | | | | |
| 03... | 0845 | 23300 | 1080 | 7.7 | 21.0 | 330 | 210 | 82 | 30 | 100 | 2.4 | 4.9 |
| AUG | | | | | | | | | | | | |
| 01... | 0705 | 15300 | 1070 | 7.7 | 20.5 | 340 | 200 | 83 | 31 | 99 | 2.4 | 4.9 |
| SEP | | | | | | | | | | | | |
| 01... | 1100 | 14300 | 1070 | 7.5 | 19.5 | 320 | 190 | 82 | 29 | 100 | 2.4 | 4.9 |

| DATE | BICAR-BONATE (MG/L AS HCO3) | CAR-BONATE (MG/L AS CO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER AC-FT) | NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) | BORON, DIS-SOLVED (UG/L AS B) | IRON, DIS-SOLVED (UG/L AS FE) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 03... | 150 | 0 | 300 | 92 | .3 | 8.7 | 695 | 690 | .95 | -- | 140 | 10 |
| NOV | | | | | | | | | | | | |
| 01... | 150 | 0 | 300 | 93 | .4 | 8.8 | 697 | 706 | .95 | -- | 140 | 0 |
| DEC | | | | | | | | | | | | |
| 01... | 160 | 0 | 310 | 87 | .4 | 8.8 | 707 | 703 | .96 | -- | 160 | 10 |
| JAN | | | | | | | | | | | | |
| 03... | 150 | 0 | 310 | 89 | .3 | 10 | 709 | 700 | .96 | -- | 140 | 0 |
| FEB | | | | | | | | | | | | |
| 01... | 160 | 0 | 280 | 89 | .4 | 8.8 | 694 | 674 | .94 | -- | 140 | 0 |
| MAR | | | | | | | | | | | | |
| 01... | 160 | 0 | 290 | 89 | .4 | 8.4 | 707 | 686 | .96 | -- | 140 | 10 |
| APR | | | | | | | | | | | | |
| 03... | 170 | 0 | 270 | 93 | .3 | 9.0 | 690 | 680 | .94 | -- | 140 | 10 |
| MAY | | | | | | | | | | | | |
| 01... | 160 | 0 | 280 | 87 | .3 | 9.0 | 700 | 669 | .95 | -- | 140 | 0 |
| JUN | | | | | | | | | | | | |
| 01... | 160 | 0 | 280 | 92 | .3 | 8.4 | 703 | 677 | .96 | -- | 140 | 0 |
| JUL | | | | | | | | | | | | |
| 03... | 150 | 0 | 290 | 92 | .3 | 8.9 | 706 | 683 | .96 | .17 | 130 | 30 |
| AUG | | | | | | | | | | | | |
| 01... | 160 | 0 | 290 | 94 | .3 | 9.0 | 703 | 691 | .96 | .23 | 130 | 0 |
| SEP | | | | | | | | | | | | |
| 01... | 160 | 0 | 290 | 91 | .3 | 9.3 | 716 | 687 | .97 | .26 | 150 | 30 |

COLORADO RIVER MAIN STEM

09423500 COLORADO RIVER AT NEEDLES, CA

LOCATION.--Lat 34°51'06", long 114°36'33", in SE¼SE¼ sec.19, T.9 N., R.23 E., San Bernardino meridian, San Bernardino County, Hydrologic Unit 15030101, on right bank at Needles, 15 mi (24 km) upstream from gaging station near Topock, Ariz., 30 mi (48 km) downstream from Davis Dam, and 97 mi (156 km) downstream from Hoover Dam.

DRAINAGE AREA.--174,500 mi$^2$ (452,000 km$^2$), approximately, including 3,959 mi$^2$ (10,254 km$^2$) in Great Divide basin in southern Wyoming, which is noncontributing (previously considered part of the Missouri River basin).

PERIOD OF RECORD.--April 1931 to current year (elevations only).

REVISED RECORDS.--WSP 1119: 1931-47.

GAGE.--Water-stage recorder. Datum of gage is 400.00 ft (121.920 m) National Geodetic Vertical Datum of 1929. Prior to May 15, 1942, at site 550 ft (170 m) downstream and May 15, 1942, to Feb. 16, 1969, at site 200 ft (60 m) upstream; at datum 66.23 ft (20.187 m) higher prior to Jan. 12, 1952, and at present datum thereafter.

REMARKS.--Flow regulated by Lake Mead since Feb. 1, 1935, and by Lake Mohave since Jan. 17, 1950.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 475.77 ft (145.015 m) Nov. 30, 1944; minimum, 457.84 ft (139.550 m) Feb. 26, 1973.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 469.70 ft (143.165 m) Mar. 23; minimum, 458.61 ft (139.784 m) Jan. 20-23.

MEAN ELEVATION, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 463.24 | --- | 462.07 | 460.05 | 458.76 | 460.76 | 466.96 | 464.79 | 465.45 | 467.10 | 466.34 | --- |
| 2 | 462.59 | 462.46 | 462.04 | 460.14 | 458.70 | 459.38 | 465.55 | 464.98 | 465.14 | 465.96 | 466.08 | 464.21 |
| 3 | 461.83 | 462.12 | 462.38 | 460.71 | 458.89 | 458.88 | 466.40 | 464.59 | 465.28 | 466.65 | 466.03 | 464.22 |
| 4 | 462.50 | 461.88 | 461.72 | 460.28 | 459.78 | 459.48 | 466.44 | 464.28 | 464.64 | 466.67 | 465.83 | 463.73 |
| 5 | 463.09 | 461.66 | 462.12 | 460.22 | 459.86 | 460.73 | 466.76 | 464.70 | 464.98 | 466.22 | 464.94 | --- |
| 6 | 462.25 | 461.51 | 462.73 | 459.49 | 459.54 | 460.71 | 466.42 | 465.01 | 465.30 | 465.90 | 465.79 | --- |
| 7 | 459.58 | 461.45 | 462.33 | 459.75 | 460.18 | 461.22 | 465.51 | 464.85 | 464.60 | 465.87 | 466.27 | --- |
| 8 | 461.01 | 461.72 | 462.04 | 459.41 | 459.73 | 463.14 | 466.60 | 464.45 | 464.09 | 466.80 | 465.58 | --- |
| 9 | 461.99 | 461.64 | 462.13 | 459.60 | 460.33 | 465.98 | 465.21 | 465.04 | 463.92 | 465.72 | 465.20 | --- |
| 10 | 461.92 | 461.71 | 462.36 | --- | 462.02 | 465.49 | 465.75 | 463.82 | 465.72 | 466.64 | 465.04 | --- |
| 11 | 461.77 | 461.69 | 462.02 | --- | 461.95 | 466.00 | 467.15 | 463.59 | 465.48 | 466.64 | 465.45 | --- |
| 12 | 461.37 | 462.09 | 461.70 | --- | 461.11 | 464.28 | 466.65 | 464.13 | 465.21 | 465.68 | 465.47 | --- |
| 13 | 460.47 | 461.77 | 461.91 | --- | 461.97 | 464.36 | 466.54 | 464.80 | 466.04 | 465.57 | 465.04 | --- |
| 14 | 460.71 | 461.66 | 462.26 | --- | 461.96 | 465.56 | 466.64 | 464.57 | 465.27 | 465.98 | 465.42 | --- |
| 15 | 462.28 | 462.22 | 462.53 | --- | 462.01 | 466.20 | 467.01 | 465.34 | 465.95 | 466.78 | 465.31 | --- |
| 16 | 462.91 | 461.36 | 462.74 | --- | 462.90 | 464.57 | 465.72 | 464.98 | 466.55 | 465.52 | --- | --- |
| 17 | --- | 461.19 | 462.74 | 458.67 | 462.91 | 466.54 | 466.17 | 464.33 | 465.93 | 466.10 | --- | --- |
| 18 | --- | 460.75 | 461.93 | 458.65 | 465.02 | 466.87 | 467.78 | 463.65 | 465.34 | 466.98 | --- | --- |
| 19 | --- | 461.21 | 461.54 | 458.69 | 464.35 | 465.20 | 467.63 | 464.29 | 466.32 | 467.07 | --- | --- |
| 20 | --- | 461.34 | 461.92 | 458.62 | 465.15 | 465.90 | 467.44 | 465.20 | 466.67 | 466.05 | --- | --- |
| 21 | --- | 461.41 | 461.64 | 458.67 | 465.86 | 467.30 | 467.07 | 464.89 | 466.17 | 466.38 | --- | --- |
| 22 | --- | 461.86 | 461.67 | 458.62 | 465.05 | 467.36 | 466.66 | 464.90 | 465.38 | 466.83 | --- | 462.91 |
| 23 | --- | 462.05 | 462.64 | 458.78 | 466.17 | 467.72 | 465.76 | 465.48 | 465.52 | 466.02 | --- | 463.90 |
| 24 | --- | 461.84 | 463.19 | 459.48 | 465.31 | 467.62 | 465.69 | 464.95 | 466.60 | 466.63 | --- | 463.87 |
| 25 | --- | 461.62 | 462.17 | 458.67 | 465.57 | 466.14 | 466.12 | 464.67 | 465.72 | 466.45 | --- | 463.21 |
| 26 | --- | 461.30 | 461.22 | 459.03 | 464.38 | 465.17 | 466.01 | 464.37 | 466.65 | 466.15 | --- | 464.62 |
| 27 | --- | 461.34 | 459.60 | 460.47 | 463.25 | 465.52 | 466.21 | 464.64 | 466.64 | 464.97 | --- | 462.37 |
| 28 | --- | 460.85 | 459.19 | 460.93 | 463.41 | 466.46 | 465.85 | 464.69 | 466.38 | 465.87 | --- | 463.75 |
| 29 | --- | 461.96 | 459.19 | 460.55 | --- | 466.53 | 465.51 | 464.37 | 466.20 | 465.96 | --- | 463.14 |
| 30 | --- | 461.47 | 459.19 | 460.84 | --- | 466.56 | 465.15 | 464.62 | 466.48 | 465.47 | --- | 462.89 |
| 31 | --- | --- | 459.36 | 460.29 | --- | 467.06 | --- | 465.00 | --- | 465.76 | --- | --- |
| MEAN | --- | --- | 461.69 | --- | 462.36 | 464.67 | 466.35 | 464.64 | 465.65 | 466.21 | --- | --- |
| MAX | --- | --- | 463.19 | --- | 466.17 | 467.72 | 467.78 | 465.48 | 466.67 | 467.10 | --- | --- |
| MIN | --- | --- | 459.19 | --- | 458.70 | 456.88 | 465.15 | 463.59 | 463.92 | 464.97 | --- | --- |

DIVERSIONS AND RETURN FLOWS BETWEEN DAVIS DAM AND PARKER DAM

09423550 TOPOCK MARSH INLET NEAR NEEDLES, CA

LOCATION.--Lat 34°50'10", long 114°35'03", in NE¼NW¼ sec.33, T.9 N., R.23 E., San Bernardino meridian, in Arizona, Mohave County, Hydrologic Unit 15030101, on left bank of Colorado River on north side of intake structure, 1.3 mi (2.1 km) east of Needles.

PERIOD OF RECORD.--January 1967 to current year.

GAGE.--Water-stage recorders above and below intake gates to record head; recorder to show gate opening. Datum of gages is 400.00 ft (121.920 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair above 50 $ft^3/s$ (1.4 $m^3/s$) and poor below. Topock Marsh inlet diverts water from the Colorado River into Topock Marsh, an area of 4,260 acres (17.2 $km^2$). This water flows through the marsh and returns to the Colorado River through the Topock Marsh outlet. (See following page.) The Bureau of Sport Fisheries and Wildlife maintains two other gates to the same opening as the recording gate.

AVERAGE DISCHARGE.--11 years, 63.4 $ft^3/s$ (1.795 $m^3/s$), 45,930 acre-ft/yr (56.6 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 249 $ft^3/s$ (7.05 $m^3/s$) Mar. 5, 1976; no flow at times in most years.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 90 | 81 | 39 | 6.0 | .00 | .00 | .00 | 21 | 104 | 122 | 77 | 78 |
| 2 | 95 | 80 | 39 | 6.0 | .00 | .00 | .00 | 18 | 98 | 109 | 76 | 73 |
| 3 | 65 | 84 | 47 | 7.0 | .00 | .00 | .00 | 18 | 102 | 117 | 76 | 73 |
| 4 | 78 | 72 | 31 | .00 | .00 | .00 | .00 | 18 | 93 | 117 | 75 | 70 |
| 5 | 88 | 70 | 45 | .00 | .00 | .00 | .00 | 17 | 98 | 113 | 68 | 64 |
| 6 | 83 | 62 | 69 | .00 | .00 | .00 | .00 | 18 | 102 | 109 | 75 | 69 |
| 7 | 47 | 35 | 54 | .00 | .00 | 10 | .00 | 18 | 93 | 67 | 79 | 76 |
| 8 | 41 | .00 | 40 | .00 | .00 | 127 | .00 | 17 | 86 | 37 | 114 | 68 |
| 9 | 72 | .00 | 35 | .00 | .00 | 195 | .00 | 18 | 82 | 34 | 130 | 81 |
| 10 | 70 | .00 | 55 | .00 | .00 | 184 | .00 | 16 | 107 | 36 | 131 | 74 |
| 11 | 63 | .00 | 44 | .00 | .00 | 191 | 40 | 15 | 103 | 36 | 135 | 71 |
| 12 | 74 | .00 | 14 | .00 | .00 | 153 | 50 | 40 | 101 | 34 | 133 | 66 |
| 13 | 46 | .00 | 43 | .00 | .00 | 155 | 50 | 95 | 111 | 33 | 125 | 70 |
| 14 | 41 | .00 | 43 | .00 | .00 | 181 | 35 | 95 | 102 | 35 | 136 | 69 |
| 15 | 71 | .00 | 60 | .00 | .00 | 194 | 35 | 90 | 109 | 37 | 131 | 71 |
| 16 | 94 | .00 | 65 | .00 | .00 | 151 | 31 | 95 | 115 | 33 | 132 | 74 |
| 17 | 78 | .00 | 62 | .00 | .00 | 202 | 29 | 90 | 108 | 35 | 131 | 69 |
| 18 | 79 | .00 | 43 | .00 | .00 | 206 | 31 | 80 | 102 | 37 | 118 | 70 |
| 19 | 80 | .00 | 13 | .00 | .00 | 175 | 29 | 90 | 114 | 38 | 127 | 68 |
| 20 | 78 | .00 | 23 | .00 | .00 | 188 | 28 | 100 | 116 | 35 | 110 | 65 |
| 21 | 78 | .00 | 18 | .00 | .00 | 212 | 28 | 95 | 111 | 36 | 116 | 59 |
| 22 | 92 | .00 | 17 | .00 | .00 | 211 | 27 | 95 | 102 | 37 | 129 | 57 |
| 23 | 84 | .00 | 42 | .00 | .00 | 133 | 25 | 100 | 104 | 35 | 130 | 71 |
| 24 | 68 | .00 | 67 | .00 | .00 | 68 | 24 | 95 | 117 | 37 | 130 | 65 |
| 25 | 80 | .00 | 45 | .00 | .00 | 62 | 26 | 90 | 106 | 36 | 119 | 60 |
| 26 | 73 | .00 | 6.0 | .00 | .00 | 58 | 25 | 90 | 118 | 35 | 112 | 76 |
| 27 | 76 | 7.5 | .00 | .00 | .00 | 27 | 26 | 95 | 117 | 37 | 103 | 66 |
| 28 | 79 | 35 | .00 | .00 | .00 | .00 | 25 | 95 | 114 | 61 | 104 | 68 |
| 29 | 76 | 27 | .00 | .00 | --- | .00 | 24 | 90 | 113 | 72 | 101 | 58 |
| 30 | 77 | 22 | .00 | .00 | --- | .00 | 24 | 95 | 116 | 69 | 100 | 55 |
| 31 | 61 | --- | .00 | .00 | --- | .00 | --- | 97 | --- | 71 | 94 | --- |
| TOTAL | 2277 | 575.50 | 1059.00 | 19.00 | .00 | 3083.00 | 612.00 | 2006 | 3164 | 1740 | 3417 | 2054 |
| MEAN | 73.5 | 19.2 | 34.2 | .61 | .000 | 99.5 | 20.4 | 64.7 | 105 | 56.1 | 110 | 68.5 |
| MAX | 95 | 84 | 69 | 7.0 | .00 | 212 | 50 | 100 | 118 | 122 | 136 | 81 |
| MIN | 41 | .00 | .00 | .00 | .00 | .00 | .00 | 15 | 82 | 33 | 68 | 55 |
| AC-FT | 4520 | 1140 | 2100 | 38 | .00 | 6120 | 1210 | 3980 | 6280 | 3450 | 6780 | 4070 |

CAL YR 1977 TOTAL 19300.50 MEAN 52.9 MAX 225 MIN .00 AC-FT 38280
WTR YR 1978 TOTAL 20006.50 MEAN 54.8 MAX 212 MIN .00 AC-FT 39680

## 09423650 TOPOCK MARSH OUTLET NEAR TOPOCK, AZ

LOCATION.--Lat 34°44'13", long 114°29'22", in SW¼SE¼ sec.27, T.16 N., R.21 W., Gila and Salt River meridian, Mohave County, Hydrologic Unit 15030101, at outlet structure in left bank levee of Colorado River, 1.3 mi (2.1 km) north of Topock.

PERIOD OF RECORD.--January 1967 to current year (June 1978 to September 1978 monthly discharge only).

GAGE.--Staff gage on marsh. Prior to June 1, 1978, water-stage recorders on marsh and on river to record head over weir; log of elevations of stoplogs on crest of weir; log of operation of flapgates just downstream from weir. Datum of gage is 450.00 ft (137.160 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Station measures return flow from Topock Marsh, an area of 4,260 acres (17.2 $km^2$), to Colorado River. Reverse flow (from Colorado River into Topock Marsh) occurred at times during July to September 1967, when flapgates were tied open. After February 1977, reverse flow can no longer occur.

AVERAGE DISCHARGE.--11 years, 10.9 $ft^3/s$ (0.309 $m^3/s$), 7,900 acre-ft/yr (9.74 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 828 $ft^3/s$ (23.4 $m^3/s$) July 8, 1968; no flow for most of time; maximum daily reverse flow, 238 $ft^3/s$ (6.74 $m^3/s$) Aug. 15, 1967.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | | | | |
| 2 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | | | | |
| 3 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | | | | |
| 4 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | | | | |
| 5 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | | | | |
| 6 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | | | | |
| 7 | .00 | 140 | .00 | .00 | .00 | .00 | .00 | .00 | | | | |
| 8 | .00 | 251 | .00 | .00 | .00 | .00 | .00 | .00 | | | | |
| 9 | .00 | 245 | .00 | .00 | .00 | .00 | .00 | .00 | | | | |
| 10 | .00 | 239 | .00 | .00 | .00 | .00 | .00 | .00 | | | | |
| 11 | .00 | 234 | .00 | .00 | .00 | .00 | .00 | .00 | Discontinued as a daily-record station. | | | |
| 12 | .00 | 230 | .00 | .00 | .00 | .00 | .00 | .00 | | | | |
| 13 | .00 | 225 | .00 | .00 | .00 | .00 | .00 | .00 | | | | |
| 14 | .00 | 221 | .00 | .00 | .00 | .00 | .00 | .00 | | | | |
| 15 | .00 | 216 | .00 | .00 | .00 | .00 | .00 | .00 | | | | |
| 16 | .00 | 68 | .00 | .00 | .00 | .00 | .00 | .00 | | | | |
| 17 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | | | | |
| 18 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | | | | |
| 19 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | | | | |
| 20 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | | | | |
| 21 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | | | | |
| 22 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | | | | |
| 23 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | | | | |
| 24 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | | | | |
| 25 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | | | | |
| 26 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | | | | |
| 27 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | | | | |
| 28 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | | | | |
| 29 | .00 | .00 | .00 | .00 | --- | .00 | .00 | .00 | | | | |
| 30 | .00 | .00 | .00 | .00 | --- | .00 | .00 | .00 | | | | |
| 31 | .00 | --- | .00 | .00 | --- | .00 | --- | .00 | | | | |
| TOTAL | .00 | 2069.00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| MEAN | .000 | 69.0 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| MAX | .00 | 251 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| MIN | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| AC-FT | .00 | 4100 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |

CAL YR 1977 TOTAL 2148.00 MEAN 5.88 MAX 251 MIN .00 AC-FT 4260
WTR YR 1978 TOTAL 2069.00 MEAN 5.67 MAX 251 MIN .00 AC-FT 4100

## 09424000 COLORADO RIVER NEAR TOPOCK, AZ

LOCATION.--Lat 34°41'15", long 114°27'43", in SW¼NW¼ sec.13, T.15 N., R.21 W., Gila and Salt River meridian, Mohave County, Hydrologic Unit 15030101, on left bank in Mohave Canyon, 2.4 mi (3.9 km) southeast of Topock, 39 mi (63 km) upstream from Parker Dam, and 45 mi (72 km) downstream from Davis Dam.

DRAINAGE AREA.--176,300 $mi^2$ (456,600 $km^2$), approximately, including 3,959 $mi^2$ (10,254 $km^2$) in Great Divide basin in southern Wyoming, which is noncontributing (previously considered part of the Missouri River basin).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1917 to current year. Daily mean elevations published since October 1938.

REVISED RECORDS.--WSP 918: 1921. WSP 1313: 1918-19(M).

GAGE.--Water-stage recorder. Datum of gage is 423.02 ft (128.936 m) National Geodetic Vertical Datum of 1929; gage readings have been reduced to elevations NGVD. Prior to Dec. 3, 1922, at site about 1 mi (2 km) upstream at different datum.

REMARKS.--Records fair. Many diversions above station for irrigation, municipal, and industrial uses. Flow regulated by Lake Mead since Feb. 1, 1935, and by Lake Mohave since Jan. 17, 1950.

AVERAGE DISCHARGE.--17 years (water years 1918-34), 20,260 $ft^3/s$ (573.8 $m^3/s$), 14,670,000 acre-ft/yr (18,100 $hm^3/yr$); 44 years (water years 1935-78), 12,750 $ft^3/s$ (361.1 $m^3/s$), 9,237,000 acre-ft/yr (11,400 $hm^3/yr$), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--1917-34: Maximum discharge probably exceeded 200,000 $ft^3/s$ (5,660 $m^3/s$) June 22, 1921; minimum, 1,480 $ft^3/s$ (41.9 $m^3/s$) Aug. 17, 1934.
1934-78: Maximum discharge, 35,700 $ft^3/s$ (1,010 $m^3/s$) Jan. 29, 1942; maximum elevation, 457.37 ft (139.406 m) July 9, 1959; minimum discharge, 375 $ft^3/s$ (10.6 $m^3/s$) Feb. 14, 1935; minimum daily, 422 $ft^3/s$ (12.0 $m^3/s$) Feb. 14, 1935.

EXTREMES OUTSIDE PERIOD OF RECORD.--Discharge of about 300,000 $ft^3/s$ (8,500 $m^3/s$), based on determination at Lees Ferry gaging station, occurred about July 10, 1884. Discharge estimated to be in excess of 400,000 $ft^3/s$ (11,300 $m^3/s$) probably occurred within the period 1857-68 and most likely in 1862.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 20,400 $ft^3/s$ (578 $m^3/s$) Mar. 24; maximum elevation, 455.61 ft (138.870 m) June 27; minimum daily discharge, 2,280 $ft^3/s$ (64.6 $m^3/s$) Jan. 26; minimum elevation, 448.12 ft (136.587 m) Jan. 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 8300 | 7070 | 6660 | 4010 | 2860 | 6980 | 17300 | 12000 | 12500 | 16000 | 15000 | 11200 |
| 2 | 8030 | 7970 | 7140 | 4110 | 2520 | 4570 | 16500 | 12700 | 13200 | 15800 | 15200 | 11400 |
| 3 | 7010 | 7350 | 7430 | 5060 | 2430 | 2960 | 14000 | 12000 | 13100 | 14400 | 15000 | 11800 |
| 4 | 7940 | 7150 | 7180 | 4810 | 3340 | 2850 | 16400 | 11200 | 12600 | 16200 | 14800 | 10800 |
| 5 | 8400 | 6930 | 6240 | 4640 | 3800 | 5060 | 16200 | 11500 | 12300 | 15000 | 13100 | 10900 |
| 6 | 8450 | 6390 | 8330 | 3750 | 3310 | 5100 | 16500 | 12200 | 13300 | 14800 | 14800 | 10400 |
| 7 | 3980 | 6290 | 7680 | 3850 | 3680 | 5100 | 14100 | 12100 | 12800 | 14800 | 14500 | 11500 |
| 8 | 4830 | 6810 | 7410 | 3500 | 3820 | 7370 | 15800 | 11300 | 11600 | 15500 | 14500 | 11400 |
| 9 | 6590 | 6490 | 7010 | 3510 | 4000 | 11400 | 15200 | 12700 | 11300 | 15500 | 14400 | 12400 |
| 10 | 6880 | 6870 | 7620 | 3970 | 6210 | 14200 | 12900 | 11600 | 13100 | 14400 | 12500 | 12200 |
| 11 | 6460 | 6320 | 7600 | 3040 | 7020 | 13800 | 16300 | 10300 | 14500 | 16300 | 13700 | 10700 |
| 12 | 7100 | 7520 | 6340 | 2700 | 6270 | 13600 | 16200 | 10700 | 12800 | 14500 | 14000 | 10700 |
| 13 | 5120 | 7430 | 6780 | 2570 | 5470 | 10200 | 16000 | 11700 | 14400 | 13900 | 13900 | 10300 |
| 14 | 4130 | 6450 | 7580 | 3180 | 7740 | 13000 | 16000 | 11700 | 13500 | 13700 | 12700 | 10800 |
| 15 | 6240 | 7240 | 7780 | 4110 | 6300 | 14300 | 16600 | 11600 | 14100 | 15700 | 13800 | 10200 |
| 16 | 8260 | 7070 | 7870 | 2830 | 8160 | 13700 | 16400 | 13700 | 15100 | 14900 | 14400 | 11000 |
| 17 | 7580 | 5920 | 8530 | 2550 | 8060 | 13600 | 13500 | 11400 | 15100 | 13400 | 13700 | 11000 |
| 18 | 7910 | 5510 | 7910 | 2410 | 10300 | 16200 | 17400 | 10100 | 14100 | 15800 | 12600 | 10200 |
| 19 | 7370 | 5790 | 6140 | 2430 | 11900 | 15100 | 18000 | 10800 | 13700 | 16200 | 12800 | 10300 |
| 20 | 7560 | 6240 | 6760 | 2390 | 10500 | 12600 | 17900 | 12400 | 15700 | 15200 | 13000 | 10100 |
| 21 | 7070 | 5870 | 6720 | 2370 | 13500 | 16300 | 17400 | 13100 | 15300 | 14700 | 11300 | 9020 |
| 22 | 8520 | 6420 | 6630 | 2380 | 12900 | 17100 | 16400 | 12000 | 14000 | 15500 | 13400 | 8850 |
| 23 | 8750 | 6920 | 7080 | 2320 | 13000 | 18100 | 16200 | 13600 | 13500 | 15600 | 14000 | 9760 |
| 24 | 6360 | 7090 | 9180 | 3080 | 13500 | 18700 | 13200 | 13200 | 15200 | 14400 | 14000 | 11600 |
| 25 | 7680 | 6500 | 8750 | 2370 | 12900 | 16300 | 15500 | 12200 | 15000 | 15100 | 13600 | 8330 |
| 26 | 7140 | 5910 | 5930 | 2280 | 12500 | 15200 | 14200 | 12000 | 14300 | 15100 | 13500 | 11800 |
| 27 | 7200 | 6000 | 4830 | 3970 | 9340 | 12400 | 14600 | 11500 | 16100 | 13500 | 13300 | 10900 |
| 28 | 7510 | 5360 | 2930 | 4980 | 9740 | 15700 | 14500 | 12400 | 15200 | 13800 | 11800 | 10100 |
| 29 | 7160 | 6500 | 2660 | 4960 | --- | 16100 | 13600 | 11400 | 15000 | 14600 | 12200 | 9650 |
| 30 | 7510 | 6580 | 2560 | 4740 | --- | 16200 | 13500 | 11600 | 15000 | 14400 | 11500 | 9050 |
| 31 | 5950 | --- | 2790 | 5210 | --- | 16700 | --- | 12300 | --- | 13400 | 11400 | --- |
| TOTAL | 218990 | 197960 | 206050 | 108080 | 215070 | 380490 | 468300 | 369000 | 417400 | 462100 | 418400 | 318360 |
| MEAN | 7064 | 6599 | 6647 | 3486 | 7681 | 12270 | 15610 | 11900 | 13910 | 14910 | 13500 | 10610 |
| MAX | 8750 | 7970 | 9180 | 5210 | 13500 | 18700 | 18000 | 13700 | 16100 | 16300 | 15200 | 12400 |
| MIN | 3980 | 5360 | 2560 | 2280 | 2430 | 2850 | 12900 | 10100 | 11300 | 13400 | 11300 | 8330 |
| AC-FT | 434400 | 392700 | 408700 | 214400 | 426600 | 754700 | 928900 | 731900 | 827900 | 916600 | 829900 | 631500 |

CAL YR 1977 TOTAL 3900080 MEAN 10690 MAX 19400 MIN 2020 AC-FT 7736000
WTR YR 1978 TOTAL 3780200 MEAN 10360 MAX 18700 MIN 2280 AC-FT 7498000

09424000 COLORADO RIVER NEAR TOPOCK, AZ--Continued

MEAN ELEVATION, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 451.79 | 451.24 | 450.90 | 449.34 | 448.62 | 450.85 | 454.48 | 453.20 | 453.83 | 454.75 | 454.17 | 452.66 |
| 2 | 451.69 | 451.62 | 451.12 | 449.40 | 448.38 | 449.66 | 454.23 | 453.53 | 454.06 | 454.66 | 454.22 | 452.73 |
| 3 | 451.24 | 451.34 | 451.25 | 449.91 | 448.31 | 448.69 | 453.35 | 453.35 | 454.02 | 454.17 | 454.12 | 452.89 |
| 4 | 451.61 | 451.24 | 451.12 | 449.79 | 448.94 | 448.61 | 454.24 | 453.14 | 453.81 | 454.77 | 454.02 | 452.55 |
| 5 | 451.81 | 451.13 | 450.67 | 449.70 | 449.23 | 449.92 | 454.20 | 453.37 | 453.68 | 454.40 | 453.39 | 452.57 |
| 6 | 451.84 | 450.86 | 451.60 | 449.20 | 448.92 | 449.94 | 454.30 | 453.62 | 454.01 | 454.31 | 453.97 | 452.39 |
| 7 | 449.82 | 450.80 | 451.32 | 449.25 | 449.15 | 449.94 | 453.48 | 453.60 | 453.82 | 454.28 | 453.85 | 452.83 |
| 8 | 450.21 | 451.03 | 451.19 | 449.05 | 449.22 | 451.07 | 454.09 | 453.29 | 453.35 | 454.54 | 453.83 | 452.80 |
| 9 | 451.04 | 450.88 | 451.00 | 449.05 | 449.35 | 452.68 | 453.89 | 453.79 | 453.25 | 454.52 | 453.78 | 453.23 |
| 10 | 451.18 | 451.05 | 451.28 | 449.32 | 450.51 | 453.45 | 453.09 | 453.45 | 453.87 | 454.14 | 453.08 | 453.13 |
| 11 | 451.00 | 450.79 | 451.27 | 448.74 | 450.91 | 453.29 | 454.29 | 452.98 | 454.34 | 454.79 | 453.48 | 452.59 |
| 12 | 451.26 | 451.34 | 450.67 | 448.52 | 450.54 | 453.22 | 454.24 | 453.17 | 453.70 | 454.17 | 453.57 | 452.60 |
| 13 | 450.39 | 451.28 | 450.87 | 448.42 | 450.13 | 452.00 | 454.17 | 453.60 | 454.25 | 453.96 | 453.49 | 452.50 |
| 14 | 449.90 | 450.81 | 451.24 | 448.84 | 451.21 | 453.02 | 454.19 | 453.62 | 453.91 | 453.88 | 453.05 | 452.68 |
| 15 | 450.85 | 451.18 | 451.33 | 449.39 | 450.56 | 453.48 | 454.38 | 453.60 | 454.13 | 454.56 | 453.42 | 452.45 |
| 16 | 451.74 | 451.08 | 451.38 | 448.60 | 451.43 | 453.23 | 454.29 | 454.00 | 454.48 | 454.26 | 453.62 | 452.78 |
| 17 | 451.45 | 450.53 | 451.63 | 448.38 | 451.38 | 453.21 | 453.30 | 453.28 | 454.47 | 453.76 | 453.37 | 452.78 |
| 18 | 451.57 | 450.32 | 451.36 | 448.29 | 452.27 | 454.12 | 454.65 | 452.88 | 454.11 | 454.58 | 452.97 | 452.48 |
| 19 | 451.35 | 450.46 | 450.55 | 448.31 | 452.87 | 453.74 | 454.84 | 453.07 | 453.98 | 454.70 | 453.07 | 452.47 |
| 20 | 451.44 | 450.68 | 450.83 | 448.28 | 452.34 | 452.85 | 454.83 | 453.55 | 454.67 | 454.33 | 453.11 | 452.38 |
| 21 | 451.23 | 450.50 | 450.81 | 448.26 | 453.43 | 454.17 | 454.64 | 453.70 | 454.52 | 454.18 | 452.52 | 451.97 |
| 22 | 451.84 | 450.78 | 450.76 | 448.27 | 453.22 | 454.43 | 454.32 | 453.31 | 454.08 | 454.45 | 453.26 | 451.88 |
| 23 | 451.92 | 451.02 | 450.97 | 448.22 | 453.28 | 454.76 | 454.24 | 453.89 | 453.88 | 454.44 | 453.50 | 452.22 |
| 24 | 450.94 | 451.10 | 451.87 | 448.77 | 453.46 | 454.94 | 453.20 | 453.74 | 454.46 | 454.05 | 453.49 | 452.88 |
| 25 | 451.52 | 450.82 | 451.66 | 448.26 | 453.22 | 454.17 | 454.02 | 453.57 | 454.41 | 454.30 | 453.35 | 451.60 |
| 26 | 451.27 | 450.53 | 450.41 | 448.19 | 453.08 | 453.77 | 453.67 | 453.66 | 454.16 | 454.28 | 453.31 | 452.94 |
| 27 | 451.34 | 450.57 | 449.79 | 449.32 | 451.90 | 452.81 | 453.92 | 453.46 | 454.77 | 453.72 | 453.22 | 452.55 |
| 28 | 451.52 | 450.25 | 448.69 | 449.88 | 452.06 | 453.95 | 453.93 | 453.81 | 454.47 | 453.83 | 452.75 | 452.25 |
| 29 | 451.37 | 450.82 | 448.51 | 449.87 | --- | 454.08 | 453.68 | 453.45 | 454.38 | 454.09 | 452.91 | 452.14 |
| 30 | 451.52 | 450.86 | 448.42 | 449.75 | --- | 454.12 | 453.71 | 453.50 | 454.38 | 454.02 | 452.71 | 451.95 |
| 31 | 450.83 | --- | 448.59 | 450.00 | --- | 454.30 | --- | 453.76 | --- | 453.66 | 452.68 | --- |
| MEAN | 451.24 | 450.90 | 450.74 | 448.99 | 451.00 | 452.66 | 454.06 | 453.48 | 454.11 | 454.28 | 453.40 | 452.53 |
| MAX | 451.92 | 451.62 | 451.87 | 450.00 | 453.46 | 454.94 | 454.84 | 454.00 | 454.77 | 454.79 | 454.22 | 453.23 |
| MIN | 449.82 | 450.25 | 448.42 | 448.19 | 448.31 | 448.61 | 453.09 | 452.88 | 453.25 | 453.66 | 452.52 | 451.60 |

CAL YR 1977 MEAN 452.52 MAX 455.56 MIN 448.42
WTR YR 1978 MEAN 452.29 MAX 454.94 MIN 448.19

09424000 COLORADO RIVER NEAR TOPOCK, AZ--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--August 1969 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: July 1952 to July 1962.

INSTRUMENTATION.--Water temperature recorder from July 1952 to July 1962.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 03... | 1400 | 7350 | 1070 | 8.1 | 20.5 | 320 | 200 | 76 | 32 | 100 | 2.4 | 4.9 |
| NOV | | | | | | | | | | | | |
| 01... | 0945 | 8170 | 1070 | 7.7 | 16.5 | 340 | 210 | 84 | 31 | 110 | 2.6 | 4.7 |
| DEC | | | | | | | | | | | | |
| 01... | 1030 | 7820 | 1070 | 8.0 | 14.0 | 340 | 210 | 85 | 32 | 96 | 2.3 | 5.0 |
| JAN | | | | | | | | | | | | |
| 03... | 1530 | 5620 | 1080 | 7.9 | 12.0 | 320 | 200 | 79 | 30 | 100 | 2.4 | 4.9 |
| FEB | | | | | | | | | | | | |
| 01... | 1320 | 2720 | 1090 | 8.0 | 13.0 | 340 | 210 | 84 | 31 | 100 | 2.4 | 4.8 |
| MAR | | | | | | | | | | | | |
| 01... | 0900 | 682 | 1070 | 8.0 | 13.0 | 340 | 200 | 83 | 31 | 100 | 2.4 | 4.7 |
| APR | | | | | | | | | | | | |
| 03... | 1400 | 12900 | 1080 | 8.0 | 14.0 | 340 | 210 | 86 | 30 | 98 | 2.3 | 5.0 |
| MAY | | | | | | | | | | | | |
| 02... | 0900 | 16100 | 1070 | 7.9 | 16.5 | 330 | 190 | 81 | 30 | 100 | 2.4 | 5.0 |
| JUN | | | | | | | | | | | | |
| 01... | 1025 | 14400 | 1070 | 8.0 | 20.0 | 340 | 200 | 85 | 30 | 100 | 2.4 | 5.2 |
| JUL | | | | | | | | | | | | |
| 03... | 1230 | 13300 | 1080 | 7.8 | 21.5 | 330 | 200 | 81 | 30 | 110 | 2.7 | 4.5 |
| AUG | | | | | | | | | | | | |
| 01... | 1000 | 16200 | 1070 | 7.9 | 21.0 | 330 | 200 | 80 | 31 | 97 | 2.3 | 4.9 |
| SEP | | | | | | | | | | | | |
| 01... | 0800 | 13800 | 1070 | 7.7 | 20.0 | 320 | 190 | 82 | 29 | 100 | 2.4 | 4.6 |

| DATE | BICAR-BONATE (MG/L AS HCO3) | CAR-BONATE (MG/L AS CO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER AC-FT) | NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) | BORON, DIS-SOLVED (UG/L AS B) | IRON, DIS-SOLVED (UG/L AS FE) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 03... | 150 | 0 | 290 | 91 | .3 | 8.3 | 698 | 677 | .95 | -- | 140 | 20 |
| NOV | | | | | | | | | | | | |
| 01... | 160 | 0 | 300 | 90 | .4 | 9.2 | 682 | 708 | .93 | -- | 130 | 0 |
| DEC | | | | | | | | | | | | |
| 01... | 160 | 0 | 320 | 88 | .4 | 8.4 | 682 | 714 | .93 | -- | 150 | 10 |
| JAN | | | | | | | | | | | | |
| 03... | 150 | 0 | 310 | 89 | .3 | 10 | 690 | 697 | .94 | -- | 140 | 0 |
| FEB | | | | | | | | | | | | |
| 01... | 160 | 0 | 280 | 92 | .5 | 8.8 | 696 | 680 | .95 | -- | 140 | 0 |
| MAR | | | | | | | | | | | | |
| 01... | 160 | 0 | 290 | 90 | .4 | 8.5 | 682 | 687 | .93 | -- | 140 | 0 |
| APR | | | | | | | | | | | | |
| 03... | 160 | 0 | 280 | 91 | .3 | 9.0 | 690 | 678 | .94 | -- | 140 | 20 |
| MAY | | | | | | | | | | | | |
| 02... | 170 | 0 | 280 | 87 | .3 | 8.9 | 682 | 676 | .93 | -- | 140 | 0 |
| JUN | | | | | | | | | | | | |
| 01... | 160 | 0 | 290 | 90 | .3 | 8.4 | 680 | 688 | .92 | -- | 140 | 0 |
| JUL | | | | | | | | | | | | |
| 03... | -- | -- | 300 | 91 | .3 | 8.7 | 680 | 704 | .92 | -- | 130 | 10 |
| AUG | | | | | | | | | | | | |
| 01... | 160 | 0 | 290 | 94 | .3 | 9.0 | 676 | 686 | .92 | .22 | 140 | 0 |
| SEP | | | | | | | | | | | | |
| 01... | 160 | 0 | 270 | 88 | .3 | 9.3 | 676 | 663 | .92 | .25 | 150 | 20 |

## 09424150 COLORADO RIVER AQUEDUCT NEAR PARKER DAM, AZ-CA

LOCATION.--Lat 34°18'58", long 114°09'23", in NW¼SW¼ sec.28, T.3 N., R.27 E., San Bernardino meridian, in California, San Bernardino County, Hydrologic Unit 15030101, at intake pumping plant of Metropolitan Water District of Southern California on Lake Havasu, 1.8 mi (2.9 km) upstream from Parker Dam and 149 mi (240 km) downstream from Hoover Dam.

PERIOD OF RECORD.--January 1939 to current year (monthly diversions only since October 1942). Published as a supplement to records for Colorado River below Parker Dam, 1942-50. Percolation return flow (monthly flow only) October 1964 to September 1973 (discontinued); prior to October 1964 miscellaneous measurements only.

GAGE.--Venturi meters in pressure lines at intake pumping plant.

REMARKS.--Pumping began Jan. 7, 1939. Figures of monthly diversion shown represent water pumped from Lake Havasu less return surface flow from Gene and Copper Basin Reservoirs. No water returned as surface flow from these reservoirs this year. Percolation return flow from Gene and Copper Basin Reservoirs is estimated by the U.S. Bureau of Reclamation as 10 acre-ft/day (12,300 $m^3$/day) for a yearly total of 3,650 acre-ft (4.50 $hm^3$), which is used for accounting purposes.

COOPERATION.--Diversion records furnished by Metropolitan Water District of Southern California.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily diversion, 3,986 acre-ft (4.91 $hm^3$), 2,010 $ft^3/s$ (56.9 $m^3/s$) Oct. 25, 1970 and Oct. 29, 1977; no diversion at times.

MONTHLY DIVERSIONS, IN ACRE-FEET, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| Month | Diversions | | | |
|---|---|---|---|---|
| | Maximum | Minimum | Mean | Total |
| October | 3,986 | 3,746 | 3,813 | 118,201 |
| November | 3,843 | 3,713 | 3,813 | 114,379 |
| December | 3,825 | 3,693 | 3,799 | 117,773 |
| CAL YR 1977 | 3,986 | 0 | 3,533 | 1,289,590 |
| January | 3,829 | 417 | 2,333 | 72,337 |
| February | 2,760 | 881 | 1,614 | 45,203 |
| March | 2,715 | 216 | 2,112 | 65,462 |
| April | 2,424 | 1,411 | 2,136 | 64,066 |
| May | 2,241 | 830 | 1,390 | 43,090 |
| June | 2,548 | 1,155 | 2,107 | 63,206 |
| July | 2,289 | 1,335 | 2,010 | 62,307 |
| August | 2,274 | 1,643 | 2,160 | 66,956 |
| September | 2,279 | 1,856 | 2,125 | 63,748 |
| WTR YR 1978 | 3,986 | 216 | 2,451 | 896,728 |

## 09424200 COTTONWOOD WASH NO. 1 NEAR KINGMAN, AZ

LOCATION.--Lat 35°10'52", long 113°28'08", in NW¼ sec.29, T.21 N., R.11 W., Mohave County, Hydrologic Unit 15030201, on right bank, 13 mi (21 km) upstream from mouth, and 34 mi (55 km) east of Kingman.

DRAINAGE AREA.--143 $mi^2$ (370 $km^2$).

PERIOD OF RECORD.--January 1959 to August 1963 (fragmentary low flow only published in WSP 1858), February 1964 to September 1978 (discontinued).

GAGE.--Water-stage recorder and concrete control. Datum of gage is 4,545 ft (1,385.3 m), from special U.S. Geological Survey project map. Prior to June 20, 1969, at site 10 ft (3 m) downstream at datum 2.72 ft (0.829 m) lower.

REMARKS.--Records poor.

AVERAGE DISCHARGE.--14 years, 4.69 $ft^3/s$ (0.133 $m^3/s$), 3,400 acre-ft/yr (4.19 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,000 $ft^3/s$ (198 $m^3/s$) July 31, 1964, gage height, 7.36 ft (2.243 m), at former site and datum of supplementary gage, from rating curve extended above 400 $ft^3/s$ (11.3 $m^3/s$) on basis of slope-area measurements at gage heights 3.82 and 7.36 ft (1.164 and 2.243 m); minimum daily, 0.10 $ft^3/s$ (0.003 $m^3/s$) many days in 1972, 1974-78.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*), (from rating curve extended above 400 $ft^3/s$ or 11.3 $m^3/s$ as explained above) and peak discharges above base of 700 $ft^3/s$ (19.8 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|
| Mar. 1 | Unknown | *3,080 | 87.2 | 4.46 | 1.36 |
| Aug. 2 | 1800 | 798 | 22.6 | 3.14 | .97 |
| Aug. 10 | 1930 | 2,790 | 79.0 | 4.33 | 1.32 |

Minimum daily, 0.10 $ft^3/s$ (0.003 $m^3/s$) Oct. 1-5, 7-11, 14-16.
Peak gage heights from high-water marks inside gage well.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .10 | .50 | 1.3 | .90 | 1.5 | 1000 | 2.0 | 1.5 | .30 | .30 | .60 | .90 |
| 2 | .10 | .50 | 1.0 | 1.0 | 1.2 | 500 | 2.0 | 1.6 | .30 | .30 | 63 | .90 |
| 3 | .10 | .50 | 1.0 | 1.2 | 1.2 | 200 | 2.0 | 1.4 | .30 | .40 | 24 | .90 |
| 4 | .10 | .50 | 1.0 | 1.1 | 1.0 | 100 | 2.0 | 1.4 | .30 | .40 | 2.0 | 25 |
| 5 | .10 | .50 | 1.0 | 1.0 | 1.0 | 500 | 1.2 | 1.3 | .30 | .40 | 1.0 | 5.8 |
| 6 | .30 | .50 | .90 | .90 | 1.0 | 200 | 1.8 | 1.3 | .30 | .40 | 1.0 | .90 |
| 7 | .10 | .50 | .80 | .90 | 1.0 | 7.0 | 1.8 | 1.2 | .30 | .40 | .90 | .90 |
| 8 | .10 | .50 | .80 | 1.0 | 1.0 | 4.6 | 2.1 | 1.2 | .30 | .40 | .90 | .90 |
| 9 | .10 | .50 | .80 | 1.2 | 1.0 | 4.4 | 1.8 | 1.2 | .30 | .40 | 9.7 | .80 |
| 10 | .10 | .50 | .80 | 2.0 | 250 | 4.2 | 1.6 | 1.1 | .30 | .40 | 180 | .80 |
| 11 | .10 | .50 | .80 | 1.3 | 80 | 4.2 | 1.3 | 1.1 | .30 | .40 | 70 | .80 |
| 12 | .80 | .50 | .80 | 1.2 | 40 | 90 | 1.6 | 1.1 | .30 | .40 | 4.5 | .80 |
| 13 | .60 | .50 | .80 | 1.2 | 20 | 30 | 1.5 | 1.0 | .30 | .40 | 71 | .70 |
| 14 | .10 | .50 | .80 | 1.3 | 10 | 5.0 | 1.5 | 1.0 | .30 | .40 | 19 | .60 |
| 15 | .10 | .50 | .80 | 102 | 1.0 | 5.0 | 1.6 | .90 | .30 | .70 | 3.0 | .60 |
| 16 | .10 | .50 | .90 | 10 | 1.0 | 5.0 | 1.6 | .90 | .30 | .40 | .90 | .80 |
| 17 | .60 | .50 | .90 | 38 | 1.0 | 5.0 | 1.6 | .90 | .30 | .40 | .90 | .60 |
| 18 | .60 | .60 | .90 | 5.0 | 1.0 | 4.0 | 1.3 | .80 | .30 | .40 | .90 | .60 |
| 19 | .60 | .60 | .90 | 1.5 | 1.0 | 4.0 | 1.3 | .80 | .30 | .40 | .90 | .50 |
| 20 | 1.0 | .80 | .90 | 1.5 | 1.0 | 4.0 | 1.2 | .80 | .30 | .40 | .90 | .50 |
| 21 | .60 | .90 | .80 | 1.5 | 1.0 | 4.0 | .90 | .70 | .30 | .40 | .90 | .50 |
| 22 | .50 | 1.5 | .80 | 1.5 | 1.0 | 4.0 | 1.2 | .70 | .30 | .40 | .90 | .50 |
| 23 | .50 | 1.8 | .80 | 1.5 | 1.0 | 4.0 | 1.3 | .60 | .30 | .40 | .90 | .40 |
| 24 | .50 | 2.0 | .80 | 1.5 | 1.0 | 3.0 | 1.5 | .60 | .30 | .40 | .90 | .40 |
| 25 | .50 | 1.8 | .90 | 1.5 | 1.0 | 3.0 | 1.5 | .60 | .30 | .40 | .90 | .40 |
| 26 | .50 | 1.6 | .90 | 1.5 | 1.0 | 3.0 | 1.3 | .50 | .30 | 25 | .90 | .40 |
| 27 | .50 | 1.3 | 1.0 | 1.5 | 1.0 | 3.0 | 1.5 | .50 | .30 | 15 | .90 | .30 |
| 28 | .50 | 1.0 | 1.2 | 1.5 | 1.0 | 3.0 | 1.5 | .50 | .30 | 1.0 | .90 | .30 |
| 29 | .50 | 1.0 | 1.0 | 1.5 | --- | 3.0 | 1.2 | .40 | .30 | .90 | .90 | .30 |
| 30 | .50 | 1.2 | 1.2 | 1.5 | --- | 3.0 | 1.2 | .40 | .30 | .60 | .90 | .20 |
| 31 | .50 | --- | .90 | 16 | --- | 2.0 | --- | .40 | --- | .60 | .90 | --- |
| TOTAL | 11.40 | 24.60 | 28.20 | 205.20 | 423.9 | 2711.4 | 45.90 | 28.40 | 9.00 | 53.20 | 465.00 | 48.00 |
| MEAN | .37 | .82 | .91 | 6.62 | 15.1 | 87.5 | 1.53 | .92 | .30 | 1.72 | 15.0 | 1.60 |
| MAX | 1.0 | 2.0 | 1.3 | 102 | 250 | 1000 | 2.1 | 1.6 | .30 | 25 | 180 | 25 |
| MIN | .10 | .50 | .80 | .90 | 1.0 | 2.0 | .90 | .40 | .30 | .30 | .60 | .20 |
| AC-FT | 23 | 49 | 56 | 407 | 841 | 5380 | 91 | 56 | 18 | 106 | 922 | 95 |

CAL YR 1977 TOTAL 478.70 MEAN 1.31 MAX 160 MIN .10 AC-FT 950
WTR YR 1978 TOTAL 4054.20 MEAN 11.1 MAX 1000 MIN .10 AC-FT 8040

NOTE.--No gage-height record Oct. 17 to Nov. 18, Feb. 2 to Mar. 7, May 3 to July 2.

## 09424434 BURRO CREEK ABOVE BOULDER CREEK NEAR BAGDAD, AZ

### WATER-QUALITY RECORDS

LOCATION.--Lat 34°37'05", long 113°17'55", in sec.28, T.15 N., R.10 W., Yavapai County, Hydrologic Unit 15030202, 0.2 mi (0.3 km) above Boulder Creek, at abandoned pumping plant, about 7.5 mi (12.1 km) northwest of Bagdad.

DRAINAGE AREA.--375 $mi^2$ (971 $km^2$).

PERIOD OF RECORD.--November 1977 to current year.

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | TUR-BID-ITY (JTU) | OXYGEN, DIS-SOLVED (MG/L) | COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) | STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| JUN , 1978 | | | | | | | | | | | |
| 13... | 1430 | 1.7 | 510 | 8.6 | 26.5 | 2 | 10.4 | K36 | 68 | 140 | 0 |
| JUL | | | | | | | | | | | |
| 21... | 1200 | .30 | 610 | 8.3 | 29.0 | 1 | 8.3 | K8 | K14 | 160 | 0 |
| AUG | | | | | | | | | | | |
| 10... | 1000 | 19 | 340 | 8.1 | 23.0 | 360 | 7.5 | -- | -- | 110 | 0 |
| SEP | | | | | | | | | | | |
| 12... | 1000 | .44 | 610 | 8.3 | 21.0 | 8 | 8.3 | 200 | 60 | 170 | 0 |

| DATE | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER AC-FT) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO-GEN, TOTAL (MG/L AS N) | PHOS-PHORUS, TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | ARSENIC DIS-SOLVED (UG/L AS AS) | BARIUM, DIS-SOLVED (UG/L AS BA) | CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) | CADMIUM DIS-SOLVED (UG/L AS CD) |
|---|---|---|---|---|---|---|---|---|---|---|
| JUN , 1978 | | | | | | | | | | |
| 13... | 310 | .40 | -- | -- | -- | -- | 12 | 200 | -- | -- |
| JUL | | | | | | | | | | |
| 21... | 369 | .47 | -- | -- | -- | -- | 12 | 200 | -- | -- |
| AUG | | | | | | | | | | |
| 10... | 229 | .30 | -- | -- | -- | -- | 7 | 40 | -- | -- |
| SEP | | | | | | | | | | |
| 12... | 375 | .48 | .04 | .43 | .12 | 20 | 20 | -- | 6 | 0 |

| DATE | MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) | MANGA-NESE, DIS-SOLVED (UG/L AS MN) | MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) | MERCURY DIS-SOLVED (UG/L AS HG) | SELE-NIUM, TOTAL (UG/L AS SE) | SELE-NIUM, DIS-SOLVED (UG/L AS SE) | ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) | ZINC, DIS-SOLVED (UG/L AS ZN) | SEDI-MENT, SUS-PENDED (MG/L) | SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) |
|---|---|---|---|---|---|---|---|---|---|---|
| JUN , 1978 | | | | | | | | | | |
| 13... | -- | 10 | -- | -- | -- | 0 | -- | 10 | -- | -- |
| JUL | | | | | | | | | | |
| 21... | -- | 10 | -- | -- | -- | 0 | -- | 10 | -- | -- |
| AUG | | | | | | | | | | |
| 10... | -- | 9 | -- | -- | -- | 0 | -- | 10 | 540 | 29 |
| SEP | | | | | | | | | | |
| 12... | 60 | 0 | .0 | .0 | 0 | 0 | 10 | 0 | 27 | .03 |

K Based on non-ideal colony count.

09424434 BURRO CREEK ABOVE BOULDER CREEK NEAR BAGDAD, AZ--Continued

WATER QUALITY DATA

| DATE | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | BICAR-BONATE (MG/L AS HCO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| JUN , 1978 | | | | | | | | | | | |
| 13... | 27 | 17 | 62 | 2.3 | 8.1 | 210 | 29 | 38 | .6 | 16 | 292 |
| JUL | | | | | | | | | | | |
| 21... | 33 | 18 | 72 | 2.5 | 9.8 | 250 | 31 | 51 | .6 | 30 | 345 |
| AUG | | | | | | | | | | | |
| 10... | 25 | 11 | 29 | 1.2 | 6.1 | 180 | 16 | 17 | .3 | 35 | 222 |
| SEP | | | | | | | | | | | |
| 12... | 38 | 18 | 62 | 2.1 | 8.2 | 300 | 22 | 34 | .6 | 44 | 352 |

| DATE | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) | CHRO-MIUM, DIS-SOLVED (UG/L AS CR) | COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) | COBALT, DIS-SOLVED (UG/L AS CO) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) | COPPER, DIS-SOLVED (UG/L AS CU) | IRON, TOTAL RECOV-ERABLE (UG/L AS FE) | IRON, DIS-SOLVED (UG/L AS FE) | LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) | LEAD, DIS-SOLVED (UG/L AS PB) |
|---|---|---|---|---|---|---|---|---|---|---|
| JUN , 1978 | | | | | | | | | | |
| 13... | -- | -- | -- | -- | -- | 10 | -- | 30 | -- | 8 |
| JUL | | | | | | | | | | |
| 21... | -- | -- | -- | -- | -- | 3 | -- | 10 | -- | 9 |
| AUG | | | | | | | | | | |
| 10... | -- | -- | -- | -- | -- | 3 | -- | 150 | -- | 11 |
| SEP | | | | | | | | | | |
| 12... | 0 | 0 | 0 | 0 | 8 | 2 | 1000 | 20 | 14 | 7 |

## 09424436 BOULDER CREEK ABOVE COPPER CREEK NEAR BAGDAD, AZ

### WATER-QUALITY RECORDS

LOCATION.--Lat 34°36'23", long 113°13'51", in SW¼ sec.29, T.15 N., R.9 W., Yavapai County, Hydrologic Unit 15030202, 100 ft (30 m) upstream from Copper Creek, and 3.5 mi (5.6 km) northwest of Bagdad.

DRAINAGE AREA.--107 $mi^2$ (277 $km^2$).

PERIOD OF RECORD.--November 1977 to current year.

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | TUR-BID-ITY (JTU) | OXYGEN, DIS-SOLVED (MG/L) | COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) | STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV , 1977 | | | | | | | | | | | |
| 16... | 1430 | .03 | 3300 | 7.7 | 18.0 | 6 | 8.9 | K6 | K10 | 1900 | 1700 |
| DEC | | | | | | | | | | | |
| 13... | 1100 | .30 | 3000 | 7.7 | 6.8 | 1 | 10.6 | K6 | K28 | 1400 | 1200 |
| FEB , 1978 | | | | | | | | | | | |
| 15... | 1000 | 104 | 140 | 7.5 | 6.0 | -- | 11.1 | -- | K140 | 60 | 32 |
| APR | | | | | | | | | | | |
| 20... | 1100 | 2.4 | 1020 | 8.0 | 22.5 | 20 | 8.7 | <1 | <1 | 420 | 260 |
| MAY | | | | | | | | | | | |
| 25... | 1015 | .50 | 1500 | 8.1 | 25.0 | 1 | -- | <1 | 192 | 680 | 490 |
| JUN | | | | | | | | | | | |
| 13... | 1045 | .04 | 2000 | 8.0 | 31.5 | 1 | 10.4 | K2 | K36 | 910 | 720 |
| JUL | | | | | | | | | | | |
| 21... | 0820 | .01 | 2450 | 7.2 | 27.5 | 1 | 6.2 | K10 | 108 | 1200 | 960 |
| AUG | | | | | | | | | | | |
| 10... | 0700 | .05 | 2580 | 7.2 | 26.5 | 1 | 5.6 | K10 | 210 | 1200 | 1000 |
| SEP | | | | | | | | | | | |
| 12... | 1250 | .07 | 2800 | 7.3 | 26.0 | 1 | 6.2 | K8 | 110 | 1400 | 1200 |

| DATE | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER AC-FT) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO-GEN, TOTAL (MG/L AS N) | PHOS-PHORUS, TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | ARSENIC DIS-SOLVED (UG/L AS AS) | BARIUM, DIS-SOLVED (UG/L AS BA) | CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) | CADMIUM DIS-SOLVED (UG/L AS CD) |
|---|---|---|---|---|---|---|---|---|---|---|
| NOV , 1977 | | | | | | | | | | |
| 16... | 2980 | 4.31 | -- | -- | -- | -- | 7 | 100 | -- | -- |
| DEC | | | | | | | | | | |
| 13... | 2050 | 3.06 | -- | -- | -- | -- | 13 | 100 | -- | -- |
| FEB , 1978 | | | | | | | | | | |
| 15... | 124 | .15 | .08 | .23 | .09 | 4 | 2 | 0 | 0 | 1 |
| APR | | | | | | | | | | |
| 20... | 673 | .93 | -- | -- | -- | -- | 8 | 200 | -- | -- |
| MAY | | | | | | | | | | |
| 25... | 1100 | 1.58 | -- | -- | -- | -- | 9 | 0 | -- | -- |
| JUN | | | | | | | | | | |
| 13... | 1510 | 2.18 | -- | -- | -- | -- | 9 | 50 | -- | -- |
| JUL | | | | | | | | | | |
| 21... | 1940 | 2.87 | -- | -- | -- | -- | 7 | 0 | -- | -- |
| AUG | | | | | | | | | | |
| 10... | 2020 | 2.98 | -- | -- | -- | -- | 7 | 100 | -- | -- |
| SEP | | | | | | | | | | |
| 12... | 2120 | 3.20 | .25 | .47 | .02 | 9 | 10 | 0 | 3 | 2 |

< Actual value is known to be less than value shown.
K Based on non-ideal colony count.

09424436 BOULDER CREEK ABOVE COPPER CREEK NEAR BAGDAD, AZ--Continued

WATER-QUALITY RECORDS

| DATE | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | BICAR-BONATE (MG/L AS HCO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV , 1977 | | | | | | | | | | | |
| 16... | 410 | 220 | 180 | 1.8 | 9.9 | 240 | 1900 | 110 | 3.1 | 27 | 3170 |
| DEC | | | | | | | | | | | |
| 13... | 310 | 150 | 160 | 1.9 | 8.6 | 250 | 1200 | 71 | 3.6 | 25 | 2250 |
| FEB , 1978 | | | | | | | | | | | |
| 15... | 14 | 6.0 | 6.9 | .4 | 1.5 | 34 | 35 | 3.4 | .1 | 35 | 113 |
| APR | | | | | | | | | | | |
| 20... | 81 | 53 | 54 | 1.1 | 4.7 | 190 | 330 | 30 | 3.3 | 22 | 682 |
| MAY | | | | | | | | | | | |
| 25... | 130 | 87 | 100 | 1.7 | 7.6 | 230 | 590 | 52 | 4.8 | 17 | 1160 |
| JUN | | | | | | | | | | | |
| 13... | 200 | 100 | 140 | 2.0 | 9.4 | 230 | 850 | 80 | 4.3 | 13 | 1600 |
| JUL | | | | | | | | | | | |
| 21... | 280 | 120 | 160 | 2.0 | 12 | 280 | 1100 | 100 | 4.2 | 22 | 2110 |
| AUG | | | | | | | | | | | |
| 10... | 280 | 130 | 160 | 2.0 | 12 | 240 | 1200 | 95 | 4.7 | 21 | 2190 |
| SEP | | | | | | | | | | | |
| 12... | 300 | 150 | 140 | 1.6 | 11 | 200 | 1300 | 91 | 5.6 | 23 | 2350 |

| DATE | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) | CHRO-MIUM, DIS-SOLVED (UG/L AS CR) | COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) | COBALT, DIS-SOLVED (UG/L AS CO) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) | COPPER, DIS-SOLVED (UG/L AS CU) | IRON, TOTAL RECOV-ERABLE (UG/L AS FE) | IRON, DIS-SOLVED (UG/L AS FE) | LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) | LEAD, DIS-SOLVED (UG/L AS PB) |
|---|---|---|---|---|---|---|---|---|---|---|
| NOV , 1977 | | | | | | | | | | |
| 16... | -- | -- | -- | -- | -- | 5 | -- | 20 | -- | 15 |
| DEC | | | | | | | | | | |
| 13... | -- | -- | -- | -- | -- | 13 | -- | 30 | -- | 100 |
| FEB , 1978 | | | | | | | | | | |
| 15... | 0 | 0 | 1 | 1 | 71 | 11 | 1800 | 20 | 43 | 2 |
| APR | | | | | | | | | | |
| 20... | -- | -- | -- | -- | -- | 25 | -- | 0 | -- | 54 |
| MAY | | | | | | | | | | |
| 25... | -- | -- | -- | -- | -- | 17 | -- | 30 | -- | 21 |
| JUN | | | | | | | | | | |
| 13... | -- | -- | -- | -- | -- | 17 | -- | 10 | -- | 9 |
| JUL | | | | | | | | | | |
| 21... | -- | -- | -- | -- | -- | 12 | -- | 20 | -- | 12 |
| AUG | | | | | | | | | | |
| 10... | -- | -- | -- | -- | -- | 16 | -- | 20 | -- | 10 |
| SEP | | | | | | | | | | |
| 12... | 10 | 0 | 1 | 1 | 23 | 11 | 80 | 20 | 10 | 6 |

| DATE | MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) | MANGA-NESE, DIS-SOLVED (UG/L AS MN) | MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) | MERCURY DIS-SOLVED (UG/L AS HG) | SELE-NIUM, TOTAL (UG/L AS SE) | SELE-NIUM, DIS-SOLVED (UG/L AS SE) | ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) | ZINC, DIS-SOLVED (UG/L AS ZN) | SEDI-MENT, SUS-PENDED (MG/L) | SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) |
|---|---|---|---|---|---|---|---|---|---|---|
| NOV , 1977 | | | | | | | | | | |
| 16... | -- | 260 | -- | -- | -- | 0 | -- | 50 | -- | -- |
| DEC | | | | | | | | | | |
| 13... | -- | 650 | -- | -- | -- | 0 | -- | 100 | -- | -- |
| FEB , 1978 | | | | | | | | | | |
| 15... | 120 | 120 | .6 | .0 | 0 | 0 | 60 | 30 | 35 | 9.8 |
| APR | | | | | | | | | | |
| 20... | -- | 690 | -- | -- | -- | 1 | -- | 20 | 45 | .29 |
| MAY | | | | | | | | | | |
| 25... | -- | 180 | -- | -- | -- | 0 | -- | 30 | 3 | .00 |
| JUN | | | | | | | | | | |
| 13... | -- | 40 | -- | -- | -- | 0 | -- | 30 | 0 | .00 |
| JUL | | | | | | | | | | |
| 21... | -- | 300 | -- | -- | -- | 0 | -- | 40 | -- | -- |
| AUG | | | | | | | | | | |
| 10... | -- | 240 | -- | -- | -- | 0 | -- | 40 | 4 | .00 |
| SEP | | | | | | | | | | |
| 12... | 100 | 100 | .0 | .0 | 0 | 0 | 50 | 20 | 1 | .00 |

## 09424437 COPPER CREEK NEAR MOUTH NEAR BAGDAD, AZ

### WATER-QUALITY RECORDS

LOCATION.--lat 34°36'23", long 113°13'50", in SW¼ sec.29, T.15 N., R.9 W., Yavapai County, Hydrologic Unit 15030202, 100 ft (30 m) upstream from mouth and 3.5 mi (5.6 km) northwest of Bagdad.

DRAINAGE AREA.--10.8 $mi^2$ (28.0 $km^2$).

PERIOD OF RECORD.--October 1977 to current year.

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | OXYGEN, DIS-SOLVED (MG/L) | COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) | STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT , 1977 | | | | | | | | | | | |
| 12... | 1415 | .07 | 830 | 7.9 | 25.0 | 8.3 | -- | -- | -- | -- | -- |
| NOV | | | | | | | | | | | |
| 16... | 1500 | .08 | 790 | 8.3 | 21.0 | 8.0 | K4 | 176 | -- | -- | -- |
| DEC | | | | | | | | | | | |
| 13... | 1130 | .10 | 870 | 7.9 | 18.4 | 8.6 | 54 | 114 | -- | -- | -- |
| FEB , 1978 | | | | | | | | | | | |
| 15... | 0945 | .13 | 992 | 9.0 | 12.0 | 9.2 | K4 | K22 | 440 | 300 | 120 |
| APR | | | | | | | | | | | |
| 20... | 1100 | 8.0 | 1500 | 8.4 | 19.0 | 8.3 | <1 | K4 | -- | -- | -- |
| MAY | | | | | | | | | | | |
| 25... | 1015 | 1.4 | 1480 | 8.0 | 23.0 | -- | <1 | K30 | -- | -- | -- |
| JUN | | | | | | | | | | | |
| 13... | 1045 | 2.7 | 1750 | 7.8 | 26.0 | 7.6 | <1 | 52 | -- | -- | -- |
| JUL | | | | | | | | | | | |
| 21... | 0815 | .90 | 1700 | 8.0 | 28.0 | 7.7 | K12 | 90 | -- | -- | -- |
| AUG | | | | | | | | | | | |
| 10... | 0645 | 1.8 | 1450 | 8.0 | 24.0 | 7.5 | K18 | 300 | -- | -- | -- |
| SEP | | | | | | | | | | | |
| 12... | 1255 | .87 | 1750 | 8.2 | 24.0 | 8.1 | <1 | 72 | -- | -- | -- |

| DATE | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | BICAR-BONATE (MG/L AS HCO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT , 1977 | | | | | | | | | | | |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | | | | | | |
| 16... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| DEC | | | | | | | | | | | |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| FEB , 1978 | | | | | | | | | | | |
| 15... | 35 | 46 | 1.0 | 4.8 | 180 | 320 | 30 | 1.7 | 45 | 738 | 692 |
| APR | | | | | | | | | | | |
| 20... | -- | -- | -- | -- | -- | -- | -- | 1.5 | -- | -- | -- |
| MAY | | | | | | | | | | | |
| 25... | -- | -- | -- | -- | -- | -- | -- | 1.8 | -- | -- | -- |
| JUN | | | | | | | | | | | |
| 13... | -- | -- | -- | -- | -- | -- | -- | 1.6 | -- | -- | -- |
| JUL | | | | | | | | | | | |
| 21... | -- | -- | -- | -- | -- | -- | -- | 1.7 | -- | -- | -- |
| AUG | | | | | | | | | | | |
| 10... | -- | -- | -- | -- | -- | -- | -- | 1.5 | -- | -- | -- |
| SEP | | | | | | | | | | | |
| 12... | -- | -- | -- | -- | -- | -- | -- | 1.8 | -- | -- | -- |

< Actual value is known to be less than value shown.
K Based on non-ideal colony count.

09424437 COPPER CREEK NEAR MOUTH NEAR BAGDAD, AZ--Continued

WATER-QUALITY RECORDS

| DATE | SOLIDS, DIS-SOLVED (TONS PER AC-FT) | ARSENIC DIS-SOLVED (UG/L AS AS) | BARIUM, DIS-SOLVED (UG/L AS BA) | COPPER, DIS-SOLVED (UG/L AS CU) | IRON, DIS-SOLVED (UG/L AS FE) | LEAD, DIS-SOLVED (UG/L AS PB) | MANGA-NESE, DIS-SOLVED (UG/L AS MN) | SELE-NIUM, DIS-SOLVED (UG/L AS SE) | ZINC, DIS-SOLVED (UG/L AS ZN) | SEDI-MENT, SUS-PENDED (MG/L) | SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT , 1977 | | | | | | | | | | | |
| 12... | -- | 6 | 0 | 6 | 10 | 2 | 10 | 1 | 10 | 23 | .00 |
| NOV | | | | | | | | | | | |
| 16... | -- | 6 | 0 | 5 | 20 | 57 | 0 | 0 | 10 | -- | -- |
| DEC | | | | | | | | | | | |
| 13... | -- | 5 | 0 | 6 | 10 | 5 | 40 | 1 | 10 | -- | -- |
| FEB , 1978 | | | | | | | | | | | |
| 15... | 1.00 | 5 | 100 | 33 | 20 | 2 | 120 | 3 | 40 | 13 | .00 |
| APR | | | | | | | | | | | |
| 20... | -- | 3 | 200 | 360 | 20 | 13 | 690 | 4 | 160 | 44 | .95 |
| MAY | | | | | | | | | | | |
| 25... | -- | 2 | 0 | 190 | 30 | 18 | 1800 | 9 | 180 | 23 | .09 |
| JUN | | | | | | | | | | | |
| 13... | -- | 2 | 200 | 230 | -- | 11 | 1400 | 0 | 200 | 8 | .06 |
| JUL | | | | | | | | | | | |
| 21... | -- | 2 | 0 | 130 | 30 | 5 | 1300 | 12 | 180 | -- | -- |
| AUG | | | | | | | | | | | |
| 10... | -- | 3 | 70 | 130 | <10 | 29 | 1200 | 11 | 220 | 10 | .05 |
| SEP | | | | | | | | | | | |
| 12... | -- | 8 | 0 | 120 | 20 | 2 | 1900 | 18 | 180 | 61 | .14 |

< Actual value is known to be less than value shown.

## 09424440 BOULDER CREEK NEAR MOUTH NEAR BAGDAD, AZ

### WATER-QUALITY RECORDS

LOCATION.--Lat 34°36'45", long 113°17'55", in sec.27, T.15 N., R.10 W., Yavapai County, Hydrologic Unit 15030202, 0.2 mi (0.3 km) upstream from mouth, on downstream side of pump plant road crossing apron, and 7.8 mi (12.6 km) northwest of Bagdad.

DRAINAGE AREA.--146 $mi^2$ (378 $km^2$).

PERIOD OF RECORD.--October 1977 to current year.

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | TUR-BID-ITY (JTU) | OXYGEN, DIS-SOLVED (MG/L) | COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) | STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT , 1977 | | | | | | | | | | | |
| 12... | 1545 | .02 | 1700 | 7.9 | 27.0 | 1 | 7.4 | 300 | 58 | 690 | 530 |
| NOV | | | | | | | | | | | |
| 16... | 1630 | .07 | 1570 | 7.8 | 17.0 | 1 | 7.8 | K30 | K20 | 720 | 560 |
| DEC | | | | | | | | | | | |
| 13... | 1400 | .10 | 1700 | 8.5 | 15.4 | 1 | 9.4 | K10 | K10 | 700 | 530 |
| JAN , 1978 | | | | | | | | | | | |
| 19... | 1000 | 43 | 315 | 7.2 | 8.5 | 35 | 10.6 | K170 | 280 | 120 | 68 |
| FEB | | | | | | | | | | | |
| 15... | 1345 | 101 | 180 | 6.9 | 9.0 | 30 | 9.0 | K10 | K20 | 85 | 48 |
| MAR | | | | | | | | | | | |
| 23... | 0945 | 20 | 890 | 7.6 | 16.0 | 9 | 8.1 | K2 | K10 | 390 | 300 |
| APR | | | | | | | | | | | |
| 20... | 1015 | 11 | 1320 | 8.2 | 16.0 | 2 | 10.0 | <1 | K4 | 590 | 470 |
| MAY | | | | | | | | | | | |
| 25... | 0945 | .15 | 1400 | 7.8 | 17.0 | 1 | -- | K4 | K6 | 600 | 430 |
| JUN | | | | | | | | | | | |
| 13... | 1500 | .87 | 1400 | 8.0 | 30.0 | 1 | 7.2 | K22 | K24 | 700 | 590 |
| JUL | | | | | | | | | | | |
| 21... | 1215 | .08 | 1650 | 7.2 | 28.5 | 0 | 3.2 | 100 | 220 | 800 | 660 |
| AUG | | | | | | | | | | | |
| 10... | 1100 | .54 | 1750 | 7.6 | 29.5 | 2 | 7.0 | 370 | 110 | 770 | 630 |
| SEP | | | | | | | | | | | |
| 12... | 1100 | .27 | 2000 | 8.2 | 26.5 | 1 | 7.7 | 280 | 70 | 890 | 780 |

| DATE | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | BICAR-BONATE (MG/L AS HCO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT , 1977 | | | | | | | | | | | |
| 12... | 150 | 76 | 120 | 2.0 | 8.2 | 190 | 680 | 63 | 4.0 | 37 | 1280 |
| NOV | | | | | | | | | | | |
| 16... | 160 | 77 | 120 | 2.0 | 6.8 | 190 | 670 | 62 | 3.6 | 30 | 1240 |
| DEC | | | | | | | | | | | |
| 13... | 160 | 72 | 110 | 1.8 | 6.5 | 200 | 620 | 58 | 3.2 | 32 | 1180 |
| JAN , 1978 | | | | | | | | | | | |
| 19... | 28 | 13 | 18 | .7 | 2.3 | 68 | 85 | 8.8 | 1.3 | 19 | 207 |
| FEB | | | | | | | | | | | |
| 15... | 20 | 8.5 | 10 | .5 | 1.8 | 45 | 52 | 5.1 | 1.2 | 18 | 149 |
| MAR | | | | | | | | | | | |
| 23... | 92 | 40 | 42 | .9 | 5.5 | 120 | 320 | 24 | 4.0 | 21 | 621 |
| APR | | | | | | | | | | | |
| 20... | 150 | 52 | 70 | 1.3 | 7.6 | 140 | 520 | 39 | 2.7 | 21 | 984 |
| MAY | | | | | | | | | | | |
| 25... | 140 | 60 | 78 | 1.4 | 7.7 | 200 | 510 | 41 | 3.5 | 24 | 997 |
| JUN | | | | | | | | | | | |
| 13... | 160 | 73 | 78 | 1.3 | 8.7 | 130 | 660 | 47 | 2.4 | 18 | 1180 |
| JUL | | | | | | | | | | | |
| 21... | 190 | 79 | 94 | 1.4 | 10 | 170 | 720 | 59 | 3.8 | 28 | 1360 |
| AUG | | | | | | | | | | | |
| 10... | 180 | 77 | 86 | 1.4 | 9.8 | 170 | 760 | 54 | 4.0 | 30 | 1410 |
| SEP | | | | | | | | | | | |
| 12... | 210 | 89 | 97 | 1.4 | 9.0 | 130 | 880 | 57 | 4.3 | 30 | 1580 |

< Actual value is known to be less than value shown.
K Based on non-ideal colony count.

09424440 BOULDER CREEK NEAR MOUTH NEAR BAGDAD, AZ--Continued

WATER-QUALITY RECORDS

| DATE | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER AC-FT) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO-GEN, TOTAL (MG/L AS N) | PHOS-PHORUS, TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | ARSENIC DIS-SOLVED (UG/L AS AS) | BARIUM, DIS-SOLVED (UG/L AS BA) | CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) | CADMIUM DIS-SOLVED (UG/L AS CD) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT , 1977 | | | | | | | | | | |
| 12... | 1230 | 1.74 | -- | -- | -- | -- | 15 | 100 | -- | -- |
| NOV | | | | | | | | | | |
| 16... | 1220 | 1.69 | -- | -- | -- | -- | 10 | 0 | -- | -- |
| DEC | | | | | | | | | | |
| 13... | 1160 | 1.60 | -- | -- | -- | -- | 9 | 100 | -- | -- |
| JAN , 1978 | | | | | | | | | | |
| 19... | 209 | .28 | -- | -- | -- | -- | 8 | 0 | -- | -- |
| FEB | | | | | | | | | | |
| 15... | 140 | .20 | .11 | .31 | .09 | 4 | 3 | 100 | 0 | 0 |
| MAR | | | | | | | | | | |
| 23... | 609 | .84 | -- | -- | -- | -- | 3 | 200 | -- | -- |
| APR | | | | | | | | | | |
| 20... | 932 | 1.34 | -- | -- | -- | -- | 8 | 400 | -- | -- |
| MAY | | | | | | | | | | |
| 25... | 963 | 1.36 | -- | -- | -- | -- | 8 | 0 | -- | -- |
| JUN | | | | | | | | | | |
| 13... | 1110 | 1.60 | -- | -- | -- | -- | 10 | -- | -- | -- |
| JUL | | | | | | | | | | |
| 21... | 1270 | 1.85 | -- | -- | -- | -- | 15 | 100 | -- | -- |
| AUG | | | | | | | | | | |
| 10... | 1290 | 1.92 | -- | -- | -- | -- | 11 | 50 | -- | -- |
| SEP | | | | | | | | | | |
| 12... | 1440 | 2.15 | .01 | .18 | .02 | 11 | 7 | 0 | 3 | 1 |

| DATE | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) | CHRO-MIUM, DIS-SOLVED (UG/L AS CR) | COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) | COBALT, DIS-SOLVED (UG/L AS CO) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) | COPPER, DIS-SOLVED (UG/L AS CU) | IRON, TOTAL RECOV-ERABLE (UG/L AS FE) | IRON, DIS-SOLVED (UG/L AS FE) | LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) | LEAD, DIS-SOLVED (UG/L AS PB) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT , 1977 | | | | | | | | | | |
| 12... | -- | -- | -- | -- | -- | 5 | -- | 30 | -- | 1 |
| NOV | | | | | | | | | | |
| 16... | -- | -- | -- | -- | -- | 4 | -- | 30 | -- | 7 |
| DEC | | | | | | | | | | |
| 13... | -- | -- | -- | -- | -- | 5 | -- | 20 | -- | 9 |
| JAN , 1978 | | | | | | | | | | |
| 19... | -- | -- | -- | -- | -- | 12 | -- | 20 | -- | 4 |
| FEB | | | | | | | | | | |
| 15... | 10 | 0 | 1 | 2 | 50 | 9 | 1600 | 50 | 8 | 3 |
| MAR | | | | | | | | | | |
| 23... | -- | -- | -- | -- | -- | 41 | -- | 20 | -- | 10 |
| APR | | | | | | | | | | |
| 20... | -- | -- | -- | -- | -- | 49 | -- | 10 | -- | 6 |
| MAY | | | | | | | | | | |
| 25... | -- | -- | -- | -- | -- | 12 | -- | 20 | -- | 15 |
| JUN | | | | | | | | | | |
| 13... | -- | -- | -- | -- | -- | 13 | -- | 10 | -- | 11 |
| JUL | | | | | | | | | | |
| 21... | -- | -- | -- | -- | -- | 7 | -- | 10 | -- | 12 |
| AUG | | | | | | | | | | |
| 10... | -- | -- | -- | -- | -- | 7 | -- | <10 | -- | 7 |
| SEP | | | | | | | | | | |
| 12... | 0 | 10 | 1 | 1 | 16 | 7 | 180 | 20 | 12 | 4 |

< Actual value is known to be less than value shown.

09424440 BOULDER CREEK NEAR MOUTH NEAR BAGDAD, AZ--Continued

WATER-QUALITY RECORDS

| DATE | MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) | MANGANESE, DISSOLVED (UG/L AS MN) | MERCURY TOTAL RECOVERABLE (UG/L AS HG) | MERCURY DISSOLVED (UG/L AS HG) | SELENIUM, TOTAL (UG/L AS SE) | SELENIUM, DISSOLVED (UG/L AS SE) | ZINC, TOTAL RECOVERABLE (UG/L AS ZN) | ZINC, DISSOLVED (UG/L AS ZN) | SEDIMENT, SUSPENDED (MG/L) | SEDIMENT DISCHARGE, SUSPENDED (T/DAY) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT , 1977 | | | | | | | | | | |
| 12... | -- | 130 | -- | -- | -- | 0 | -- | 20 | 0 | .00 |
| NOV | | | | | | | | | | |
| 16... | -- | 50 | -- | -- | -- | 1 | -- | 10 | -- | -- |
| DEC | | | | | | | | | | |
| 13... | -- | 40 | -- | -- | -- | 0 | -- | 10 | 0 | .00 |
| JAN , 1978 | | | | | | | | | | |
| 19... | -- | 50 | -- | -- | -- | 1 | -- | 20 | 22 | 2.6 |
| FEB | | | | | | | | | | |
| 15... | 100 | 90 | .1 | .0 | 0 | 1 | 40 | 20 | 47 | 13 |
| MAR | | | | | | | | | | |
| 23... | -- | 610 | -- | -- | -- | 12 | -- | 30 | 15 | .81 |
| APR | | | | | | | | | | |
| 20... | -- | 360 | -- | -- | -- | 4 | -- | 40 | 4 | .13 |
| MAY | | | | | | | | | | |
| 25... | -- | 90 | -- | -- | -- | 0 | -- | 30 | 1 | .00 |
| JUN | | | | | | | | | | |
| 13... | -- | 50 | -- | -- | -- | 0 | -- | 20 | 8 | .02 |
| JUL | | | | | | | | | | |
| 21... | -- | 40 | -- | -- | -- | 0 | -- | 30 | -- | -- |
| AUG | | | | | | | | | | |
| 10... | -- | 60 | -- | -- | -- | 0 | -- | 10 | 10 | .01 |
| SEP | | | | | | | | | | |
| 12... | 60 | 40 | .0 | .0 | 1 | 0 | 10 | 10 | 6 | .00 |

09424445 BURRO CREEK AT U.S. 93 BRIDGE NEAR BAGDAD, AZ

WATER-QUALITY RECORDS

LOCATION.--Lat 34°32'50", long 113°26'35", in SE¼ sec.18, T.14 N., R.11 W., Mohave County, Hydrologic Unit 15030202, 0.2 mi (0.3 km) downstream from new U.S. 93 bridge at Burro Creek, 500 ft (152 m) north of U.S. Bureau of Land Management Burro Creek campground, and 15.5 mi (24.9 km) west of Bagdad.

DRAINAGE AREA.--612 $mi^2$ (1,585 $km^2$).

PERIOD OF RECORD.--September 1977 to current year.

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE, AIR (DEG C) | TEMPER-ATURE (DEG C) | TUR-BID-ITY (JTU) | OXYGEN, DIS-SOLVED (MG/L) | COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) | STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) | HARD-NESS (MG/L AS CACO3) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SEP , 1977 | | | | | | | | | | | |
| 07... | 1400 | .10 | 590 | 8.2 | 35.0 | 35.0 | 7 | 7.8 | 118 | 490 | 160 |
| OCT | | | | | | | | | | | |
| 12... | 1045 | .60 | 650 | 8.3 | -- | 21.0 | 3 | -- | 96 | 118 | 200 |
| NOV | | | | | | | | | | | |
| 17... | 1430 | .20 | 585 | 8.2 | -- | 19.5 | 4 | 10.7 | K28 | K36 | 190 |
| DEC | | | | | | | | | | | |
| 14... | 1515 | 1.0 | 740 | 8.3 | -- | 14.2 | 2 | 13.2 | K1280 | K3020 | 210 |
| JAN , 1978 | | | | | | | | | | | |
| 18... | 1330 | 476 | 195 | 7.5 | -- | 9.5 | 85 | 11.0 | 450 | 820 | 67 |
| FEB | | | | | | | | | | | |
| 16... | 0930 | 195 | 220 | 8.0 | -- | 7.0 | 25 | 10.0 | K16 | 84 | 91 |
| MAR | | | | | | | | | | | |
| 23... | 1330 | 79 | 555 | 7.6 | -- | 20.5 | 1 | 8.1 | <1 | K6 | 230 |
| APR | | | | | | | | | | | |
| 19... | 1430 | 26 | 740 | 8.2 | -- | 23.0 | 1 | 8.1 | <1 | K6 | 310 |
| MAY | | | | | | | | | | | |
| 24... | 1225 | 3.5 | 840 | 8.3 | -- | 22.0 | 0 | -- | K12 | 42 | 270 |
| JUN | | | | | | | | | | | |
| 14... | 1145 | 1.0 | 730 | 8.5 | -- | 30.0 | 1 | 10.4 | 92 | 172 | 250 |
| JUL | | | | | | | | | | | |
| 20... | 1330 | .20 | 770 | 8.2 | -- | 33.5 | 2 | 8.8 | K2 | K22 | 250 |
| AUG | | | | | | | | | | | |
| 09... | 1430 | .47 | 725 | 8.6 | -- | 34.5 | 1 | 8.6 | 270 | K1250 | 210 |
| SEP | | | | | | | | | | | |
| 13... | 0900 | 1.5 | 750 | 8.3 | -- | 24.0 | 1 | 10.4 | 80 | 46 | 250 |

< Actual value is known to be less than value shown.
K Based on non-ideal colony count.

09424445 BURRO CREEK AT U.S. 93 BRIDGE NEAR BAGDAD, AZ--Continued

WATER-QUALITY RECORDS

| DATE | HARDNESS, NONCARBONATE (MG/L CACO3) | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) | SODIUM ADSORPTION RATIO | POTASSIUM, DISSOLVED (MG/L AS K) | BICARBONATE (MG/L AS HCO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SEP , 1977 | | | | | | | | | | | |
| 07... | 0 | 33 | 20 | 54 | 1.8 | 9.0 | 210 | 54 | 51 | 1.2 | 37 |
| OCT | | | | | | | | | | | |
| 12... | 23 | 42 | 22 | 55 | 1.7 | 8.0 | 210 | 66 | 51 | 1.3 | 37 |
| NOV | | | | | | | | | | | |
| 17... | 22 | 40 | 23 | 60 | 1.9 | 7.0 | 210 | 76 | 50 | 1.1 | 27 |
| DEC | | | | | | | | | | | |
| 14... | 36 | 42 | 25 | 55 | 1.7 | 7.1 | 210 | 79 | 46 | 1.1 | 28 |
| JAN , 1978 | | | | | | | | | | | |
| 18... | 6 | 16 | 6.5 | 10 | .5 | 3.0 | 74 | 19 | 6.8 | .4 | 21 |
| FEB | | | | | | | | | | | |
| 16... | 15 | 22 | 8.7 | 13 | .6 | 3.1 | 92 | 31 | 6.5 | .6 | 26 |
| MAR | | | | | | | | | | | |
| 23... | 81 | 52 | 24 | 33 | 1.0 | 6.1 | 180 | 110 | 20 | 1.3 | 28 |
| APR | | | | | | | | | | | |
| 19... | 120 | 70 | 32 | 54 | 1.3 | 7.9 | 230 | 180 | 34 | 1.2 | 28 |
| MAY | | | | | | | | | | | |
| 24... | 110 | 60 | 30 | 58 | 1.5 | 8.9 | 200 | 180 | 37 | 1.1 | 28 |
| JUN | | | | | | | | | | | |
| 14... | 110 | 50 | 31 | 60 | 1.6 | 10 | 160 | 190 | 44 | 1.0 | 15 |
| JUL | | | | | | | | | | | |
| 20... | 98 | 52 | 30 | 65 | 1.8 | 12 | 190 | 160 | 57 | 1.1 | 29 |
| AUG | | | | | | | | | | | |
| 09... | 80 | 39 | 27 | 57 | 1.7 | 12 | 140 | 150 | 49 | 1.0 | 31 |
| SEP | | | | | | | | | | | |
| 13... | 82 | 54 | 29 | 57 | 1.6 | 9.8 | 210 | 150 | 41 | 1.0 | 32 |

| DATE | SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | SOLIDS, DISSOLVED (TONS PER AC-FT) | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN, TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | ARSENIC DISSOLVED (UG/L AS AS) | BARIUM, DISSOLVED (UG/L AS BA) | CADMIUM TOTAL RECOVERABLE (UG/L AS CD) | CADMIUM DISSOLVED (UG/L AS CD) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SEP , 1977 | | | | | | | | | | | |
| 07... | 345 | 363 | .47 | .01 | .18 | .05 | 12 | 13 | 100 | 10 | 0 |
| OCT | | | | | | | | | | | |
| 12... | 366 | 386 | .50 | -- | -- | -- | -- | 8 | 100 | -- | -- |
| NOV | | | | | | | | | | | |
| 17... | 368 | 388 | .50 | -- | -- | -- | -- | 7 | 0 | -- | -- |
| DEC | | | | | | | | | | | |
| 14... | 383 | 387 | .52 | -- | -- | -- | -- | 8 | 0 | -- | -- |
| JAN , 1978 | | | | | | | | | | | |
| 18... | 124 | 119 | .17 | -- | -- | -- | -- | 5 | 0 | -- | -- |
| FEB | | | | | | | | | | | |
| 16... | 163 | 158 | .22 | .18 | .31 | .15 | 7 | 6 | 0 | 0 | 0 |
| MAR | | | | | | | | | | | |
| 23... | 360 | 364 | .49 | -- | -- | -- | -- | 7 | 200 | -- | -- |
| APR | | | | | | | | | | | |
| 19... | 507 | 521 | .69 | -- | -- | -- | -- | 14 | 300 | -- | -- |
| MAY | | | | | | | | | | | |
| 24... | 487 | 502 | .66 | -- | -- | -- | -- | 11 | 0 | -- | -- |
| JUN | | | | | | | | | | | |
| 14... | 453 | 484 | .62 | -- | -- | -- | -- | 12 | 100 | -- | -- |
| JUL | | | | | | | | | | | |
| 20... | 491 | 500 | .67 | -- | -- | -- | -- | 13 | 200 | -- | -- |
| AUG | | | | | | | | | | | |
| 09... | 451 | 443 | .61 | -- | -- | -- | -- | 11 | 30 | -- | -- |
| SEP | | | | | | | | | | | |
| 13... | 470 | 478 | .64 | .06 | .46 | .02 | 12 | 11 | 0 | 4 | 0 |

09424445 BURRO CREEK AT U.S. 93 BRIDGE NEAR BAGDAD, AZ--Continued

WATER-QUALITY RECORDS

| DATE | CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) | CHROMIUM, DISSOLVED (UG/L AS CR) | COBALT, TOTAL RECOVERABLE (UG/L AS CO) | COBALT, DISSOLVED (UG/L AS CO) | COPPER, TOTAL RECOVERABLE (UG/L AS CU) | COPPER, DISSOLVED (UG/L AS CU) | IRON, TOTAL RECOVERABLE (UG/L AS FE) | IRON, DISSOLVED (UG/L AS FE) | LEAD, TOTAL RECOVERABLE (UG/L AS PB) | LEAD, DISSOLVED (UG/L AS PB) |
|---|---|---|---|---|---|---|---|---|---|---|
| SEP , 1977 | | | | | | | | | | |
| 07... | 10 | 0 | <50 | 0 | <10 | 4 | 350 | 20 | <100 | 2 |
| OCT | | | | | | | | | | |
| 12... | -- | -- | -- | -- | -- | 1 | -- | 20 | -- | 0 |
| NOV | | | | | | | | | | |
| 17... | -- | -- | -- | -- | -- | 3 | -- | 20 | -- | 1 |
| DEC | | | | | | | | | | |
| 14... | -- | -- | -- | -- | -- | 2 | -- | 50 | -- | 18 |
| JAN , 1978 | | | | | | | | | | |
| 18... | -- | -- | -- | -- | -- | 8 | -- | 40 | -- | 2 |
| FEB | | | | | | | | | | |
| 16... | 10 | 10 | 1 | 1 | 20 | 8 | 1100 | 30 | 13 | 6 |
| MAR | | | | | | | | | | |
| 23... | -- | -- | -- | -- | -- | 5 | -- | 20 | -- | 38 |
| APR | | | | | | | | | | |
| 19... | -- | -- | -- | -- | -- | 11 | -- | 0 | -- | 4 |
| MAY | | | | | | | | | | |
| 24... | -- | -- | -- | -- | -- | 8 | -- | 20 | -- | 13 |
| JUN | | | | | | | | | | |
| 14... | -- | -- | -- | -- | -- | 6 | -- | 10 | -- | 12 |
| JUL | | | | | | | | | | |
| 20... | -- | -- | -- | -- | -- | 5 | -- | 20 | -- | 6 |
| AUG | | | | | | | | | | |
| 09... | -- | -- | -- | -- | -- | 7 | -- | <10 | -- | 8 |
| SEP | | | | | | | | | | |
| 13... | 0 | 0 | 0 | 0 | 8 | 5 | 60 | 50 | 60 | 4 |

| DATE | MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) | MANGANESE, DISSOLVED (UG/L AS MN) | MERCURY TOTAL RECOVERABLE (UG/L AS HG) | MERCURY DISSOLVED (UG/L AS HG) | SELENIUM, TOTAL (UG/L AS SE) | SELENIUM, DISSOLVED (UG/L AS SE) | ZINC, TOTAL RECOVERABLE (UG/L AS ZN) | ZINC, DISSOLVED (UG/L AS ZN) | SEDIMENT, SUSPENDED (MG/L) | SEDIMENT DISCHARGE, SUSPENDED (T/DAY) |
|---|---|---|---|---|---|---|---|---|---|---|
| SEP , 1977 | | | | | | | | | | |
| 07... | 80 | 40 | .0 | .0 | 1 | 0 | 40 | 0 | -- | -- |
| OCT | | | | | | | | | | |
| 12... | -- | 20 | -- | -- | -- | 0 | -- | 10 | 3 | .00 |
| NOV | | | | | | | | | | |
| 17... | -- | 10 | -- | -- | -- | 1 | -- | 8 | 14 | .01 |
| DEC | | | | | | | | | | |
| 14... | -- | 30 | -- | -- | -- | 0 | -- | 10 | 2 | .01 |
| JAN , 1978 | | | | | | | | | | |
| 18... | -- | 10 | -- | -- | -- | 0 | -- | 20 | 81 | 104 |
| FEB | | | | | | | | | | |
| 16... | 30 | 10 | 2.7 | .0 | 0 | 1 | 40 | 10 | 19 | 10 |
| MAR | | | | | | | | | | |
| 23... | -- | 30 | -- | -- | -- | 5 | -- | 0 | 4 | .85 |
| APR | | | | | | | | | | |
| 19... | -- | 0 | -- | -- | -- | 1 | -- | 10 | 2 | .14 |
| MAY | | | | | | | | | | |
| 24... | -- | 10 | -- | -- | -- | 0 | -- | 10 | 1 | .01 |
| JUN | | | | | | | | | | |
| 14... | -- | 0 | -- | -- | -- | 0 | -- | 10 | 7 | .02 |
| JUL | | | | | | | | | | |
| 20... | -- | 20 | -- | -- | -- | 0 | -- | 10 | -- | -- |
| AUG | | | | | | | | | | |
| 09... | -- | 20 | -- | -- | -- | 0 | -- | 10 | -- | -- |
| SEP | | | | | | | | | | |
| 13... | 70 | 30 | .0 | .0 | 0 | 0 | 10 | 0 | 3 | .01 |

< Actual value is known to be less than value shown.

## 09424447 BURRO CREEK AT OLD U.S. 93 BRIDGE NEAR BAGDAD, AZ

### WATER-QUALITY RECORDS

LOCATION.--Lat 34°32'30", long 113°26'40", in NE¼ sec.19, T.14 N., R.11 W., Mohave County, Hydrologic Unit 15030202, 0.2 mi (0.3 km) downstream from old U.S. 93 bridge at Burro Creek, and 15.5 mi (24.9 km) west of Bagdad.

DRAINAGE AREA.--613 $mi^2$ (1,588 $km^2$).

PERIOD OF RECORD.--September 1977 to current year.

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE, AIR (DEG C) | TEMPER-ATURE (DEG C) | TUR-BID-ITY (JTU) | OXYGEN, DIS-SOLVED (MG/L) | COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) | STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) | HARD-NESS (MG/L AS CACO3) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SEP , 1977 | | | | | | | | | | | |
| 07... | 1600 | .02 | 580 | 8.9 | 35.0 | 35.0 | 45 | -- | 470 | 740 | 160 |
| DEC | | | | | | | | | | | |
| 14... | 1315 | .07 | 710 | 8.6 | -- | 12.5 | 9 | 12.6 | K34 | K22 | 210 |
| FEB , 1978 | | | | | | | | | | | |
| 16... | 1100 | 195 | 230 | 7.2 | -- | 8.0 | 20 | 10.8 | K12 | 118 | 95 |
| MAR | | | | | | | | | | | |
| 23... | 1415 | 79 | 555 | 7.6 | -- | 23.0 | 1 | 8.1 | <1 | K10 | 220 |
| APR | | | | | | | | | | | |
| 19... | 1230 | 26 | 810 | 8.2 | -- | 18.5 | 1 | 8.4 | <1 | K12 | 300 |
| MAY | | | | | | | | | | | |
| 24... | 1115 | 3.5 | 750 | 8.5 | -- | 26.0 | 0 | -- | 50 | 100 | 270 |
| JUN | | | | | | | | | | | |
| 14... | 1130 | 1.0 | 1150 | 8.4 | -- | 28.5 | 1 | 10.0 | K170 | 146 | 250 |
| JUL | | | | | | | | | | | |
| 20... | 1315 | .20 | 750 | 8.6 | -- | 35.0 | 1 | 12.0 | 210 | 84 | 240 |
| AUG | | | | | | | | | | | |
| 09... | 1410 | .27 | 740 | 8.4 | -- | 36.5 | 1 | 11.2 | K1080 | 290 | 210 |
| SEP | | | | | | | | | | | |
| 13... | 0830 | .77 | 770 | 8.0 | -- | 22.0 | 1 | 8.0 | 370 | 88 | 250 |

| DATE | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | BICAR-BONATE (MG/L AS HCO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SEP , 1977 | | | | | | | | | | | |
| 07... | 0 | 30 | 20 | 60 | 2.1 | 9.5 | 210 | 58 | 36 | 1.0 | 27 |
| DEC | | | | | | | | | | | |
| 14... | 26 | 42 | 26 | 55 | 1.6 | 7.2 | 210 | 80 | 48 | .9 | 22 |
| FEB , 1978 | | | | | | | | | | | |
| 16... | 18 | 23 | 9.2 | 14 | .6 | 3.2 | 94 | 30 | 7.3 | .6 | 26 |
| MAR | | | | | | | | | | | |
| 23... | 72 | 50 | 23 | 34 | 1.0 | 6.1 | 180 | 110 | 20 | 1.3 | 28 |
| APR | | | | | | | | | | | |
| 19... | 120 | 69 | 32 | 52 | 1.3 | 7.8 | 230 | 180 | 34 | 1.2 | 27 |
| MAY | | | | | | | | | | | |
| 24... | 120 | 59 | 30 | 62 | 1.6 | 9.3 | 180 | 190 | 38 | 1.2 | 28 |
| JUN | | | | | | | | | | | |
| 14... | 120 | 52 | 29 | 61 | 1.7 | 10 | 150 | 180 | 43 | 1.0 | 16 |
| JUL | | | | | | | | | | | |
| 20... | 100 | 51 | 28 | 67 | 1.9 | 12 | 170 | 160 | 53 | 1.1 | 26 |
| AUG | | | | | | | | | | | |
| 09... | 68 | 42 | 25 | 57 | 1.7 | 12 | 160 | 140 | 48 | 1.0 | 31 |
| SEP | | | | | | | | | | | |
| 13... | 84 | 53 | 28 | 60 | 1.7 | 10 | 200 | 160 | 40 | 1.1 | 29 |

< Actual value is known to be less than value shown.
K Based on non-ideal colony count.

09424447 BURRO CREEK AT OLD U.S. 93 BRIDGE NEAR BAGDAD, AZ--Continued

WATER QUALITY DATA

| DATE | SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER AC-FT) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO-GEN, TOTAL (MG/L AS N) | PHOS-PHORUS, TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | ARSENIC DIS-SOLVED (UG/L AS AS) | BARIUM, DIS-SOLVED (UG/L AS BA) | CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) | CADMIUM DIS-SOLVED (UG/L AS CD) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SEP , 1977 | | | | | | | | | | | |
| 07... | 338 | 358 | .46 | .00 | 1.0 | .21 | 18 | 15 | 300 | <10 | 0 |
| DEC | | | | | | | | | | | |
| 14... | 1 | 393 | .00 | -- | -- | -- | -- | 6 | 0 | -- | -- |
| FEB , 1978 | | | | | | | | | | | |
| 16... | 171 | 161 | .23 | .18 | .29 | .15 | 7 | 6 | 0 | 0 | 0 |
| MAR | | | | | | | | | | | |
| 23... | 361 | 362 | .49 | -- | -- | -- | -- | 6 | 200 | -- | -- |
| APR | | | | | | | | | | | |
| 19... | 499 | 517 | .68 | -- | -- | -- | -- | 13 | 400 | -- | -- |
| MAY | | | | | | | | | | | |
| 24... | 492 | 509 | .67 | -- | -- | -- | -- | 11 | 100 | -- | -- |
| JUN | | | | | | | | | | | |
| 14... | 459 | 471 | .62 | -- | -- | -- | -- | 12 | 200 | -- | -- |
| JUL | | | | | | | | | | | |
| 20... | 481 | 482 | .65 | -- | -- | -- | -- | 10 | 200 | -- | -- |
| AUG | | | | | | | | | | | |
| 09... | 444 | 440 | .60 | -- | -- | -- | -- | 12 | 20 | -- | -- |
| SEP | | | | | | | | | | | |
| 13... | 460 | 480 | .63 | .01 | .26 | .02 | 11 | 9 | 0 | 3 | 1 |

| DATE | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) | CHRO-MIUM, DIS-SOLVED (UG/L AS CR) | COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) | COBALT, DIS-SOLVED (UG/L AS CO) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) | COPPER, DIS-SOLVED (UG/L AS CU) | IRON, TOTAL RECOV-ERABLE (UG/L AS FE) | IRON, DIS-SOLVED (UG/L AS FE) | LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) | LEAD, DIS-SOLVED (UG/L AS PB) |
|---|---|---|---|---|---|---|---|---|---|---|
| SEP , 1977 | | | | | | | | | | |
| 07... | 20 | 0 | <50 | 0 | 10 | 7 | 1700 | 20 | <100 | 2 |
| DEC | | | | | | | | | | |
| 14... | -- | -- | -- | -- | -- | 2 | -- | 30 | -- | 2 |
| FEB , 1978 | | | | | | | | | | |
| 16... | 190 | 0 | 10 | 1 | 21 | 6 | 76000 | 20 | 65 | 4 |
| MAR | | | | | | | | | | |
| 23... | -- | -- | -- | -- | -- | 11 | -- | 20 | -- | 5 |
| APR | | | | | | | | | | |
| 19... | -- | -- | -- | -- | -- | 10 | -- | 0 | -- | 11 |
| MAY | | | | | | | | | | |
| 24... | -- | -- | -- | -- | -- | 9 | -- | 40 | -- | 12 |
| JUN | | | | | | | | | | |
| 14... | -- | -- | -- | -- | -- | 7 | -- | 10 | -- | 12 |
| JUL | | | | | | | | | | |
| 20... | -- | -- | -- | -- | -- | 6 | -- | 10 | -- | 9 |
| AUG | | | | | | | | | | |
| 09... | -- | -- | -- | -- | -- | 4 | -- | <10 | -- | 9 |
| SEP | | | | | | | | | | |
| 13... | 0 | 0 | 1 | 1 | 8 | 7 | 60 | 20 | 130 | 6 |

< Actual value is known to be less than value shown.

09424447 BURRO CREEK AT OLD U.S. 93 BRIDGE NEAR BAGDAD, AZ--Continued

WATER QUALITY DATA

| DATE | MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) | MANGANESE, DISSOLVED (UG/L AS MN) | MERCURY TOTAL RECOVERABLE (UG/L AS HG) | MERCURY DISSOLVED (UG/L AS HG) | SELENIUM, TOTAL (UG/L AS SE) | SELENIUM, DISSOLVED (UG/L AS SE) | ZINC, TOTAL RECOVERABLE (UG/L AS ZN) | ZINC, DISSOLVED (UG/L AS ZN) | SEDIMENT, SUSPENDED (MG/L) | SEDIMENT DISCHARGE, SUSPENDED (T/DAY) |
|---|---|---|---|---|---|---|---|---|---|---|
| SEP , 1977 | | | | | | | | | | |
| 07... | 410 | 10 | .4 | .0 | 0 | 1 | 50 | 0 | -- | -- |
| DEC | | | | | | | | | | |
| 14... | -- | 50 | -- | -- | -- | 0 | -- | 10 | 13 | .00 |
| FEB , 1978 | | | | | | | | | | |
| 16... | 8000 | 10 | .0 | .0 | 0 | 1 | 640 | 10 | 15 | 7.9 |
| MAR | | | | | | | | | | |
| 23... | -- | 20 | -- | -- | -- | 3 | -- | 0 | 2 | .43 |
| APR | | | | | | | | | | |
| 19... | -- | 10 | -- | -- | -- | 1 | -- | 10 | 1 | .07 |
| MAY | | | | | | | | | | |
| 24... | -- | 0 | -- | -- | -- | 0 | -- | 5 | 2 | .02 |
| JUN | | | | | | | | | | |
| 14... | -- | 0 | -- | -- | -- | 0 | -- | 10 | 7 | .02 |
| JUL | | | | | | | | | | |
| 20... | -- | 20 | -- | -- | -- | 0 | -- | 10 | -- | -- |
| AUG | | | | | | | | | | |
| 09... | -- | 20 | -- | -- | -- | 0 | -- | <3 | 8 | .01 |
| SEP | | | | | | | | | | |
| 13... | 40 | 40 | .0 | .0 | 0 | 0 | 20 | 0 | 1 | .00 |

< Actual value is known to be less than value shown.

## 09424450 BIG SANDY RIVER NEAR WIKIEUP, AZ

LOCATION.--Lat 34°27'45", long 113°37'25", in SE¼ sec.16, T.13 N., R.13 W., Mohave County, Hydrologic Unit 15030201, on left bank 7 mi (11 km) downstream from Burro Creek, 15 mi (24 km) upstream from confluence with Santa Maria River, and 17 mi (27 km) south of Wikieup.

DRAINAGE AREA.--2,800 $mi^2$ (7,250 $km^2$), approximately.

PERIOD OF RECORD.--March 1966 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,400 ft (427 m), from topographic map. Prior to Oct. 1, 1970, at datum 3.06 ft (0.933 m), corrected, higher. Oct. 1, 1970, to Oct. 10, 1973, at datum 2.06 ft (0.628 m) higher. Supplementary water-stage recorder for low flows at site 75 ft (23 m) upstream at same datum since Apr. 10, 1975; Mar. 28 to Dec. 7, 1966, Apr. 2, 1969, to Apr. 9, 1975, at site 0.8 mi (1.3 km) downstream at different datum.

REMARKS.--Records poor. Diversions above station for irrigation of about 3,800 acres (15 $km^2$), mostly by pumping from ground water.

AVERAGE DISCHARGE.--12 years, 63.1 $ft^3/s$ (1.79 $m^3/s$), 45,720 acre-ft/yr (56.4 $hm^3/yr$); median of yearly mean discharges, 37 $ft^3/s$ (1.05 $m^3/s$), 26,800 acre-ft/yr (33 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 36,500 $ft^3/s$ (1,030 $m^3/s$) Mar. 1, 1978, gage height, 16.42 ft (5.005 m), from rating curve extended above 21,000 $ft^3/s$ (595 $m^3/s$); minimum daily, 1.3 $ft^3/s$ (0.037 $m^3/s$) July 13, 1974.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*), (from rating curve extended above 21,000 $ft^3/s$ or 595 $m^3/s$) and peak discharges above base of 1,000 $ft^3/s$ (28 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) | Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Jan. 15 | 1630 | 8,250 | 234 | 7.59 | 2.313 | Mar. 5 | 1345 | 15,400 | 436 | 9.82 | 2.993 |
| Feb. 11 | 0630 | 17,900 | 507 | 10.62 | 3.237 | Mar. 12 | 2330 | 4,960 | 140 | 6.52 | 1.987 |
| Mar. 1 | 0845 | *36,500 | 1,030 | 16.42 | 5.005 | | | | | | |

Minimum daily, 2.0 $ft^3/s$ (0.057 $m^3/s$) Aug. 10

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 3.1 | 3.1 | 3.5 | 3.7 | 850 | 19900 | 67 | 31 | 4.2 | 4.3 | 2.9 | 3.8 |
| 2 | 3.1 | 3.3 | 3.7 | 3.1 | 330 | 10100 | 74 | 31 | 4.1 | 4.4 | 3.0 | 3.9 |
| 3 | 3.1 | 3.5 | 3.9 | 2.9 | 148 | 7800 | 70 | 31 | 4.1 | 4.4 | 2.9 | 3.8 |
| 4 | 3.1 | 3.5 | 3.9 | 2.9 | 88 | 1620 | 67 | 32 | 4.3 | 4.0 | 3.1 | 4.3 |
| 5 | 3.1 | 3.5 | 3.9 | 2.9 | 63 | 5880 | 67 | 27 | 4.2 | 3.9 | 3.0 | 4.2 |
| 6 | 3.5 | 3.5 | 3.9 | 2.7 | 54 | 2220 | 63 | 25 | 4.1 | 3.9 | 2.9 | 4.0 |
| 7 | 3.5 | 3.5 | 3.9 | 2.7 | 85 | 1240 | 60 | 21 | 4.1 | 4.0 | 3.2 | 3.9 |
| 8 | 3.3 | 3.5 | 3.9 | 2.5 | 488 | 718 | 63 | 19 | 4.3 | 3.6 | 3.4 | 3.8 |
| 9 | 3.3 | 3.5 | 3.7 | 2.7 | 190 | 573 | 67 | 16 | 4.3 | 3.5 | 3.2 | 3.9 |
| 10 | 3.1 | 3.5 | 3.7 | 6.6 | 98 | 536 | 60 | 15 | 4.2 | 3.7 | 2.0 | 3.8 |
| 11 | 3.3 | 3.7 | 3.7 | 5.6 | 5370 | 488 | 60 | 15 | 4.1 | 3.8 | 3.0 | 4.0 |
| 12 | 3.3 | 3.7 | 3.9 | 153 | 1190 | 2090 | 60 | 14 | 4.0 | 3.4 | 2.4 | 3.9 |
| 13 | 3.3 | 3.7 | 4.1 | 93 | 680 | 2610 | 54 | 14 | 4.1 | 3.4 | 3.4 | 4.2 |
| 14 | 3.3 | 3.7 | 4.1 | 19 | 530 | 1450 | 49 | 13 | 4.2 | 3.4 | 3.5 | 4.1 |
| 15 | 3.5 | 3.7 | 4.1 | 2130 | 692 | 760 | 47 | 11 | 4.3 | 3.5 | 2.4 | 4.2 |
| 16 | 3.5 | 3.7 | 4.1 | 2480 | 393 | 464 | 43 | 10 | 4.2 | 3.3 | 2.4 | 4.4 |
| 17 | 3.5 | 3.7 | 4.1 | 973 | 156 | 291 | 43 | 8.9 | 4.3 | 3.4 | 2.6 | 4.4 |
| 18 | 3.5 | 3.7 | 4.1 | 700 | 89 | 224 | 41 | 9.0 | 4.3 | 3.3 | 2.6 | 4.2 |
| 19 | 3.5 | 3.7 | 4.1 | 209 | 56 | 173 | 43 | 8.5 | 4.5 | 3.3 | 2.9 | 4.0 |
| 20 | 3.7 | 3.5 | 4.1 | 416 | 41 | 137 | 38 | 8.2 | 4.3 | 3.2 | 3.0 | 4.0 |
| 21 | 11 | 3.5 | 3.9 | 520 | 32 | 131 | 36 | 7.4 | 4.4 | 3.1 | 3.0 | 4.0 |
| 22 | 4.4 | 3.5 | 3.9 | 225 | 26 | 109 | 36 | 7.1 | 4.3 | 3.0 | 3.2 | 4.1 |
| 23 | 3.9 | 3.5 | 3.9 | 61 | 29 | 109 | 31 | 6.7 | 4.0 | 3.2 | 3.3 | 4.1 |
| 24 | 4.3 | 3.5 | 3.9 | 25 | 23 | 92 | 34 | 6.1 | 4.2 | 3.2 | 3.3 | 4.0 |
| 25 | 4.3 | 3.5 | 4.1 | 20 | 20 | 88 | 34 | 6.3 | 4.3 | 3.2 | 3.3 | 4.0 |
| 26 | 4.1 | 3.5 | 4.1 | 15 | 17 | 81 | 33 | 5.9 | 4.3 | 3.2 | 3.3 | 4.0 |
| 27 | 3.9 | 3.7 | 3.9 | 10 | 17 | 81 | 33 | 5.7 | 4.1 | 3.0 | 3.4 | 4.1 |
| 28 | 3.3 | 3.7 | 3.9 | 5.0 | 9000 | 74 | 31 | 5.3 | 4.1 | 3.0 | 3.4 | 4.0 |
| 29 | 3.3 | 3.5 | 3.9 | 5.0 | --- | 70 | 31 | 5.2 | 4.4 | 3.0 | 3.7 | 4.2 |
| 30 | 3.3 | 3.5 | 3.9 | 5.0 | --- | 67 | 30 | 4.6 | 4.4 | 3.2 | 3.7 | 4.3 |
| 31 | 3.1 | --- | 3.7 | 569 | --- | 67 | --- | 4.1 | --- | 2.9 | 3.8 | --- |
| TOTAL | 115.5 | 106.6 | 121.5 | 8671.3 | 20755 | 60243 | 1465 | 424.0 | 126.7 | 107.7 | 95.2 | 121.6 |
| MEAN | 3.73 | 3.55 | 3.92 | 280 | 741 | 1943 | 48.8 | 13.7 | 4.22 | 3.47 | 3.07 | 4.05 |
| MAX | 11 | 3.7 | 4.1 | 2480 | 9000 | 19900 | 74 | 32 | 4.5 | 4.4 | 3.8 | 4.4 |
| MIN | 3.1 | 3.1 | 3.5 | 2.5 | 17 | 67 | 30 | 4.1 | 4.0 | 2.9 | 2.0 | 3.8 |
| AC-FT | 229 | 211 | 241 | 17200 | 41170 | 119500 | 2910 | 841 | 251 | 214 | 189 | 241 |

CAL YR 1977 TOTAL 1516.4 MEAN 4.15 MAX 102 MIN 1.7 AC-FT 3010
WTR YR 1978 TOTAL 92353.1 MEAN 253 MAX 19900 MIN 2.0 AC-FT 183200

NOTE.--No gage-height record Oct. 16 to Nov. 17.

09424450 BIG SANDY RIVER NEAR WICKIEUP, AZ--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--September 1977 to current year.

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | TUR-BID-ITY (JTU) | OXYGEN, DIS-SOLVED (MG/L) | COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) | STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SEP , 1977 | | | | | | | | | | | |
| 06... | 1500 | 2.4 | 1160 | 8.1 | 28.0 | 4 | 6.2 | K160 | 84 | 260 | 9 |
| OCT | | | | | | | | | | | |
| 13... | 1100 | 3.0 | 1060 | 8.0 | 24.5 | 2 | 8.0 | 280 | 380 | 280 | 29 |
| NOV | | | | | | | | | | | |
| 17... | 1200 | 3.3 | 1080 | 7.9 | 22.0 | 1 | 8.8 | 92 | K44 | 290 | 22 |
| DEC | | | | | | | | | | | |
| 14... | 1030 | 4.3 | 1260 | 7.7 | 17.8 | 2 | 8.6 | 184 | 440 | 300 | 41 |
| JAN , 1978 | | | | | | | | | | | |
| 19... | 1530 | 197 | 265 | 8.1 | 11.0 | 80 | 10.2 | K160 | 700 | 92 | 10 |
| FEB | | | | | | | | | | | |
| 14... | 1130 | 251 | 280 | 8.1 | 11.0 | 45 | 12.4 | K30 | 250 | 120 | 11 |
| MAR | | | | | | | | | | | |
| 22... | 1300 | 104 | 720 | 7.8 | 23.0 | 5 | 7.7 | K10 | K2 | 240 | 62 |
| APR | | | | | | | | | | | |
| 21... | 1030 | 38 | 1090 | 8.4 | 21.0 | 1 | 8.4 | K16 | K18 | 300 | 54 |
| MAY | | | | | | | | | | | |
| 24... | 1430 | 17 | 1180 | 8.0 | 26.0 | 0 | -- | K146 | K50 | 300 | 23 |
| JUN | | | | | | | | | | | |
| 14... | 0900 | 3.7 | 1160 | 8.1 | 27.0 | 1 | 8.7 | 48 | 76 | 310 | 37 |
| JUL | | | | | | | | | | | |
| 20... | 1030 | 3.5 | 1140 | 8.1 | 33.0 | 1 | 9.3 | 40 | 48 | 300 | 43 |
| AUG | | | | | | | | | | | |
| 09... | 1145 | 3.0 | 1090 | 8.2 | 32.0 | 1 | 8.9 | 98 | 74 | 270 | 11 |
| SEP | | | | | | | | | | | |
| 13... | 1230 | 3.6 | 1120 | 7.9 | 28.5 | 1 | 7.2 | 100 | 200 | 290 | 27 |
| 16... | 1315 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

| DATE | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | BICAR-BONATE (MG/L AS HCO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SEP , 1977 | | | | | | | | | | | |
| 06... | 56 | 30 | 120 | 3.2 | 7.9 | 310 | 120 | 100 | 1.3 | 36 | 622 |
| OCT | | | | | | | | | | | |
| 13... | 59 | 33 | 120 | 3.1 | 7.3 | 310 | 140 | 99 | 1.3 | 36 | 645 |
| NOV | | | | | | | | | | | |
| 17... | 61 | 34 | 130 | 3.3 | 7.5 | 330 | 150 | 110 | 1.3 | 35 | 663 |
| DEC | | | | | | | | | | | |
| 14... | 64 | 35 | 130 | 3.2 | 8.0 | 320 | 150 | 110 | 1.3 | 36 | 687 |
| JAN , 1978 | | | | | | | | | | | |
| 19... | 23 | 8.4 | 19 | .9 | 3.6 | 100 | 30 | 12 | .5 | 23 | 170 |
| FEB | | | | | | | | | | | |
| 14... | 29 | 11 | 26 | 1.0 | 4.1 | 130 | 42 | 14 | .7 | 26 | 224 |
| MAR | | | | | | | | | | | |
| 22... | 56 | 25 | 66 | 1.8 | 7.9 | 220 | 120 | 50 | .4 | 14 | 451 |
| APR | | | | | | | | | | | |
| 21... | 68 | 32 | 110 | 2.8 | 9.2 | 300 | 160 | 92 | 1.4 | 31 | 647 |
| MAY | | | | | | | | | | | |
| 24... | 68 | 32 | 140 | 3.5 | 9.4 | 340 | 160 | 120 | 1.5 | 33 | 713 |
| JUN | | | | | | | | | | | |
| 14... | 67 | 34 | 140 | 3.5 | 8.9 | 330 | 170 | 120 | 1.4 | 26 | 710 |
| JUL | | | | | | | | | | | |
| 20... | 63 | 34 | 130 | 3.3 | 9.1 | 310 | 160 | 110 | 1.4 | 34 | 685 |
| AUG | | | | | | | | | | | |
| 09... | 55 | 31 | 130 | 3.5 | 8.7 | 310 | 150 | 110 | 1.4 | 37 | 658 |
| SEP | | | | | | | | | | | |
| 13... | 63 | 32 | 130 | 3.3 | 8.0 | 320 | 170 | 110 | 1.5 | 39 | 656 |
| 16... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

K Based on non-ideal colony count.

09424450 BIG SANDY RIVER NEAR WICKIEUP, AZ--Continued

WATER QUALITY DATA

| DATE | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER AC-FT) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO-GEN, TOTAL (MG/L AS N) | PHOS-PHORUS, TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | ARSENIC DIS-SOLVED (UG/L AS AS) | BARIUM, DIS-SOLVED (UG/L AS BA) | CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) | CADMIUM DIS-SOLVED (UG/L AS CD) |
|---|---|---|---|---|---|---|---|---|---|---|
| SEP , 1977 | | | | | | | | | | |
| 06... | 625 | .85 | .12 | .16 | .07 | 10 | 11 | 300 | <10 | 0 |
| OCT | | | | | | | | | | |
| 13... | 649 | .88 | -- | -- | -- | -- | 5 | 0 | -- | -- |
| NOV | | | | | | | | | | |
| 17... | 692 | .90 | -- | -- | -- | -- | 10 | 0 | -- | -- |
| DEC | | | | | | | | | | |
| 14... | 692 | .93 | -- | -- | -- | -- | 11 | 0 | -- | -- |
| JAN , 1978 | | | | | | | | | | |
| 19... | 169 | .23 | -- | -- | -- | -- | 7 | 100 | -- | -- |
| FEB | | | | | | | | | | |
| 14... | 219 | .30 | .35 | .53 | .21 | 8 | 8 | 100 | 0 | 0 |
| MAR | | | | | | | | | | |
| 22... | 448 | .61 | -- | -- | -- | -- | 6 | 200 | -- | -- |
| APR | | | | | | | | | | |
| 21... | 653 | .88 | -- | -- | -- | -- | 12 | 400 | -- | -- |
| MAY | | | | | | | | | | |
| 24... | 732 | .97 | -- | -- | -- | -- | 9 | 100 | -- | -- |
| JUN | | | | | | | | | | |
| 14... | 731 | .97 | -- | -- | -- | -- | 11 | 200 | -- | -- |
| JUL | | | | | | | | | | |
| 20... | 695 | .93 | -- | -- | -- | -- | 9 | -- | -- | -- |
| AUG | | | | | | | | | | |
| 09... | 676 | .89 | -- | -- | -- | -- | 10 | 50 | -- | -- |
| SEP | | | | | | | | | | |
| 13... | 713 | .89 | .36 | .66 | .06 | 12 | 11 | -- | 3 | 0 |
| 16... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

| DATE | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) | CHRO-MIUM, DIS-SOLVED (UG/L AS CR) | COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) | COBALT, DIS-SOLVED (UG/L AS CO) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) | COPPER, DIS-SOLVED (UG/L AS CU) | IRON, TOTAL RECOV-ERABLE (UG/L AS FE) | IRON, DIS-SOLVED (UG/L AS FE) | LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) | LEAD, DIS-SOLVED (UG/L AS PB) |
|---|---|---|---|---|---|---|---|---|---|---|
| SEP , 1977 | | | | | | | | | | |
| 06... | 10 | 0 | <50 | 0 | 10 | 2 | 220 | 20 | <100 | 2 |
| OCT | | | | | | | | | | |
| 13... | -- | -- | -- | -- | -- | 1 | -- | 30 | -- | 1 |
| NOV | | | | | | | | | | |
| 17... | -- | -- | -- | -- | -- | 1 | -- | 10 | -- | 3 |
| DEC | | | | | | | | | | |
| 14... | -- | -- | -- | -- | -- | 1 | -- | 10 | -- | 3 |
| JAN , 1978 | | | | | | | | | | |
| 19... | -- | -- | -- | -- | -- | 9 | -- | 50 | -- | 3 |
| FEB | | | | | | | | | | |
| 14... | 10 | 0 | 0 | 1 | 25 | 7 | 6500 | 50 | 9 | 9 |
| MAR | | | | | | | | | | |
| 22... | -- | -- | -- | -- | -- | 9 | -- | 20 | -- | 3 |
| APR | | | | | | | | | | |
| 21... | -- | -- | -- | -- | -- | 7 | -- | 40 | -- | 96 |
| MAY | | | | | | | | | | |
| 24... | -- | -- | -- | -- | -- | 4 | -- | 20 | -- | 10 |
| JUN | | | | | | | | | | |
| 14... | -- | -- | -- | -- | -- | 7 | -- | 30 | -- | 13 |
| JUL | | | | | | | | | | |
| 20... | -- | -- | -- | -- | -- | 5 | -- | 10 | -- | 9 |
| AUG | | | | | | | | | | |
| 09... | -- | -- | -- | -- | -- | 3 | -- | <10 | -- | 8 |
| SEP | | | | | | | | | | |
| 13... | 0 | 10 | 0 | 0 | 7 | 3 | 440 | 20 | 18 | 0 |
| 16... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

< Actual value is known to be less than value shown.

09424450 BIG SANDY RIVER NEAR WICKIEUP, AZ--Continued

WATER QUALITY DATA

| DATE | MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) | MANGANESE, DISSOLVED (UG/L AS MN) | MERCURY TOTAL RECOVERABLE (UG/L AS HG) | MERCURY DISSOLVED (UG/L AS HG) | SELENIUM, TOTAL (UG/L AS SE) | SELENIUM, DISSOLVED (UG/L AS SE) | ZINC, TOTAL RECOVERABLE (UG/L AS ZN) | ZINC, DISSOLVED (UG/L AS ZN) | SEDIMENT, SUSPENDED (MG/L) | SEDIMENT DISCHARGE, SUSPENDED (T/DAY) |
|---|---|---|---|---|---|---|---|---|---|---|
| SEP , 1977 | | | | | | | | | | |
| 06... | 80 | 60 | .0 | .0 | 1 | 0 | 30 | 0 | 11 | .07 |
| OCT | | | | | | | | | | |
| 13... | -- | 40 | -- | -- | -- | 0 | -- | 0 | 0 | .00 |
| NOV | | | | | | | | | | |
| 17... | -- | 20 | -- | -- | -- | 0 | -- | 8 | 0 | .00 |
| DEC | | | | | | | | | | |
| 14... | -- | 20 | -- | -- | -- | 0 | -- | 10 | 1 | .01 |
| JAN , 1978 | | | | | | | | | | |
| 19... | -- | 0 | -- | -- | -- | 0 | -- | 20 | 290 | 154 |
| FEB | | | | | | | | | | |
| 14... | 130 | 20 | .0 | .0 | 0 | 0 | 40 | 10 | 82 | 56 |
| MAR | | | | | | | | | | |
| 22... | -- | 0 | -- | -- | -- | 6 | -- | 0 | 48 | 13 |
| APR | | | | | | | | | | |
| 21... | -- | 10 | -- | -- | -- | 1 | -- | 10 | 14 | 1.4 |
| MAY | | | | | | | | | | |
| 24... | -- | 0 | -- | -- | -- | 0 | -- | 10 | 8 | .37 |
| JUN | | | | | | | | | | |
| 14... | -- | 10 | -- | -- | -- | 0 | -- | 20 | 6 | .06 |
| JUL | | | | | | | | | | |
| 20... | -- | 10 | -- | -- | -- | 0 | -- | 10 | -- | -- |
| AUG | | | | | | | | | | |
| 09... | -- | 6 | -- | -- | -- | 0 | -- | <3 | 21 | .17 |
| SEP | | | | | | | | | | |
| 13... | 40 | 0 | .0 | .0 | 0 | 0 | 20 | 0 | 16 | .16 |
| 16... | -- | -- | -- | -- | -- | -- | -- | -- | 76 | -- |

< Actual value is known to be less than value shown.

## 09424470 KIRKLAND CREEK NEAR KIRKLAND, AZ

LOCATION.--Lat 34°23'38", long 112°43'19", in SW¼ sec.7, T.12 N., R.4 W., Yavapai County, Hydrologic Unit 15030203, on right bank 1.3 mi (2.1 km) upstream from Skull Valley Wash and 1.7 mi (2.7 km) southwest of Kirkland.

DRAINAGE AREA.--109 $mi^2$ (282 $km^2$).

PERIOD OF RECORD.--April 1973 to current year.

REVISED RECORDS.--WDR AZ-77-1: 1976.

GAGE.--Water-stage recorder. Altitude of gage is 3,900 ft (1,190 m), from topographic map.

REMARKS.--Records poor. No known diversions above station.

AVERAGE DISCHARGE.--5 years, 7.11 $ft^3/s$ (0.201 $m^3/s$), 5,150 acre-ft/yr (6.35 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,890 $ft^3/s$ (223 $m^3/s$) Mar. 1, 1978, gage height, 10.53 ft (3.209 m), from rating curve extended above 1,400 $ft^3/s$ (39.6 $m^3/s$) on basis of slope-area measurement at gage height 10.53 ft (3.209 m); minimum daily, 1.1 $ft^3/s$ (0.031 $m^3/s$) Oct. 2 to Nov. 1, 1974, Aug. 29, 1978.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*), (from rating curve extended above 1,400 $ft^3/s$ or 39.6 $m^3/s$ on basis of slope-area measurement at gage height 10.53 ft or 3.209 m) and peak discharges above base of 200 $ft^3/s$ (5.7 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) | Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Oct. 6 | Unknown | 560 | 15.8 | 3.96 | 1.207 | Mar. 1 | 0900 | *7,890 | 223 | 10.53 | 3.209 |
| Jan. 17 | 1430 | 405 | 11.5 | 3.64 | 1.109 | Mar. 12 | 0645 | 455 | 12.9 | 3.73 | 1.137 |
| Jan. 31 | 1845 | 328 | 9.29 | 3.46 | 1.055 | July 31 | 2230 | 3,010 | 85.2 | 7.1 | 2.16 |
| Feb. 11 | 0015 | 1,470 | 41.6 | 5.44 | 1.658 | | | | | | |

Minimum daily, 1.1 $ft^3/s$ (0.031 $m^3/s$) Aug. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2.2 | 2.6 | 2.6 | 2.8 | 73 | 2540 | 7.7 | 3.5 | 2.1 | 1.9 | 71 | 1.5 |
| 2 | 2.2 | 2.5 | 2.6 | 2.8 | 18 | 961 | 6.8 | 3.5 | 2.2 | 1.7 | 11 | 1.4 |
| 3 | 2.2 | 2.4 | 2.6 | 2.8 | 13 | 494 | 6.3 | 3.5 | 2.1 | 1.9 | 4.4 | 1.8 |
| 4 | 2.2 | 2.4 | 2.6 | 2.8 | 13 | 66 | 5.4 | 3.2 | 1.8 | 1.7 | 3.8 | 1.7 |
| 5 | 2.2 | 2.4 | 2.6 | 2.6 | 12 | 69 | 5.0 | 2.9 | 2.3 | 1.7 | 2.9 | 1.7 |
| 6 | 30 | 2.4 | 2.6 | 2.6 | 13 | 47 | 4.7 | 2.6 | 2.4 | 1.9 | 1.9 | 1.6 |
| 7 | 2.2 | 2.4 | 2.6 | 2.6 | 13 | 34 | 4.7 | 2.6 | 2.3 | 1.7 | 2.3 | 1.4 |
| 8 | 2.2 | 2.4 | 2.6 | 2.6 | 11 | 20 | 5.0 | 2.6 | 2.2 | 1.6 | 1.7 | 1.5 |
| 9 | 2.2 | 2.4 | 2.6 | 2.6 | 11 | 11 | 4.7 | 2.6 | 2.1 | 1.6 | 1.6 | 1.5 |
| 10 | 2.2 | 2.6 | 2.9 | 5.3 | 61 | 8.6 | 4.1 | 2.5 | 2.0 | 1.7 | 1.4 | 1.6 |
| 11 | 2.2 | 2.6 | 3.1 | 4.3 | 358 | 7.2 | 3.8 | 2.5 | 1.9 | 1.7 | 2.3 | 1.7 |
| 12 | 2.2 | 2.6 | 3.1 | 3.2 | 45 | 216 | 3.4 | 2.4 | 1.8 | 1.7 | 2.0 | 1.8 |
| 13 | 2.2 | 2.6 | 3.1 | 2.7 | 18 | 96 | 3.4 | 2.4 | 1.7 | 1.7 | 1.9 | 1.5 |
| 14 | 2.3 | 2.6 | 3.1 | 2.6 | 68 | 48 | 3.1 | 2.3 | 1.6 | 1.7 | 1.4 | 1.8 |
| 15 | 2.3 | 2.6 | 3.1 | 9.8 | 68 | 29 | 3.1 | 2.3 | 1.6 | 1.7 | 1.9 | 2.0 |
| 16 | 2.3 | 2.6 | 3.1 | 29 | 18 | 18 | 3.1 | 2.2 | 1.7 | 1.7 | 1.7 | 3.2 |
| 17 | 2.3 | 2.6 | 2.8 | 108 | 7.2 | 16 | 2.9 | 2.2 | 1.6 | 1.7 | 1.8 | 3.0 |
| 18 | 2.3 | 2.6 | 2.8 | 37 | 3.8 | 11 | 2.9 | 2.1 | 1.4 | 1.7 | 1.5 | 2.4 |
| 19 | 2.4 | 2.6 | 2.8 | 15 | 3.6 | 9.5 | 2.9 | 2.1 | 1.3 | 1.7 | 1.6 | 2.4 |
| 20 | 2.4 | 2.6 | 2.8 | 33 | 3.5 | 9.0 | 2.9 | 1.8 | 1.4 | 1.7 | 1.5 | 2.3 |
| 21 | 2.4 | 2.6 | 2.8 | 41 | 3.4 | 9.0 | 2.6 | 1.8 | 1.3 | 1.7 | 1.8 | 2.0 |
| 22 | 2.4 | 2.6 | 2.8 | 9.5 | 3.2 | 9.5 | 2.6 | 1.7 | 1.6 | 1.7 | 1.7 | 2.1 |
| 23 | 2.6 | 2.6 | 2.6 | 7.2 | 3.2 | 11 | 2.6 | 1.9 | 1.9 | 1.7 | 1.3 | 1.8 |
| 24 | 2.6 | 2.6 | 2.6 | 6.4 | 2.9 | 8.1 | 2.6 | 2.3 | 1.6 | 1.7 | 1.3 | 1.9 |
| 25 | 2.6 | 2.6 | 2.6 | 6.2 | 2.9 | 6.8 | 2.3 | 2.2 | 1.4 | 1.7 | 1.3 | 2.9 |
| 26 | 2.4 | 2.6 | 2.8 | 6.0 | 3.2 | 6.3 | 2.3 | 2.3 | 1.4 | 1.7 | 1.3 | 2.4 |
| 27 | 2.3 | 2.6 | 3.1 | 5.7 | 3.5 | 6.3 | 2.3 | 2.1 | 1.6 | 1.7 | 1.3 | 1.8 |
| 28 | 2.3 | 2.6 | 3.1 | 5.7 | 116 | 5.9 | 2.3 | 2.0 | 1.7 | 1.7 | 1.3 | 1.8 |
| 29 | 2.4 | 2.6 | 2.8 | 5.4 | --- | 6.3 | 2.3 | 2.0 | 1.9 | 1.7 | 1.1 | 1.7 |
| 30 | 2.4 | 2.7 | 2.8 | 5.6 | --- | 6.3 | 2.3 | 1.7 | 1.7 | 1.7 | 1.2 | 1.6 |
| 31 | 2.4 | --- | 2.8 | 76 | --- | 7.2 | --- | 1.9 | --- | 110 | 1.3 | --- |
| TOTAL | 99.5 | 76.6 | 86.9 | 448.8 | 969.4 | 4793.0 | 110.1 | 73.7 | 53.6 | 161.4 | 134.5 | 57.8 |
| MEAN | 3.21 | 2.55 | 2.80 | 14.5 | 34.6 | 155 | 3.67 | 2.38 | 1.79 | 5.21 | 4.34 | 1.93 |
| MAX | 30 | 2.7 | 3.1 | 108 | 358 | 2540 | 7.7 | 3.5 | 2.4 | 110 | 71 | 3.2 |
| MIN | 2.2 | 2.4 | 2.6 | 2.6 | 2.9 | 5.9 | 2.3 | 1.7 | 1.3 | 1.6 | 1.1 | 1.4 |
| AC-FT | 197 | 152 | 172 | 890 | 1920 | 9510 | 218 | 146 | 106 | 320 | 267 | 115 |

CAL YR 1977 TOTAL 892.8 MEAN 2.45 MAX 30 MIN 1.5 AC-FT 1770
WTR YR 1978 TOTAL 7065.3 MEAN 19.4 MAX 2540 MIN 1.1 AC-FT 14010

## 09424900 SANTA MARIA RIVER NEAR BAGDAD, AZ

LOCATION.--Lat 34°18'21", long 113°20'47", in SE¼ sec.12, T.11 N., R.11 W., Mohave County, Hydrologic Unit 15030203, on right bank 4.0 mi (6.4 km) east of Palmerita Ranch, 12 mi (19 km) upstream from confluence with Big Sandy River, and 21 mi (34 km) southwest of Bagdad.

DRAINAGE AREA.--1,210 $mi^2$ (3,130 $km^2$), approximately.

PERIOD OF RECORD.--April 1966 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,360 ft (415 m), from topographic map.

REMARKS.--Records poor. Diversions above station for irrigation of about 5,300 acres (21.4 $km^2$), most of which is by pumping from ground water.

AVERAGE DISCHARGE.--12 years, 44.2 $ft^3/s$ (1.252 $m^3/s$), 32,020 acre-ft/yr (39.5 $hm^3/yr$); median of yearly mean discharges, 22 $ft^3/s$ (0.62 $m^3/s$), 15,900 acre-ft/yr (20 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 23,100 $ft^3/s$ (654 $m^3/s$) Mar. 1, 1978, gage height, 7.82 ft (2.384 m), from rating curve extended above 5,000 $ft^3/s$ (140 $m^3/s$) on basis of step-backwater computations and slope-area measurements at gage heights 5.50 and 7.82 ft (1.676 and 2.384 m); no flow for most of time.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*), (from rating curve extended above 5,000 $ft^3/s$ or 140 $m^3/s$ as explained above) and peak discharges above base of 200 $ft^3/s$ (5.7 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) | Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Oct. 6 | 0445 | 761 | 21.6 | 3.02 | 0.920 | Feb. 11 | 0215 | 8,820 | 250 | 4.99 | 1.521 |
| Jan. 15 | 1645 | 1,480 | 41.9 | 3.99 | 1.216 | Feb. 15 | 0945 | 411 | 11.6 | 3.44 | 1.049 |
| Jan. 17 | 1545 | 2,130 | 60.3 | 4.15 | 1.265 | Feb. 28 | 1530 | 12,900 | 365 | 5.41 | 1.649 |
| Jan. 20 | 0745 | 1,000 | 28.3 | 3.76 | 1.146 | Mar. 1 | 0700 | *23,100 | 654 | 7.82 | 2.384 |
| Feb. 1 | 0200 | 1,680 | 47.6 | 4.04 | 1.231 | Mar. 5 | 1300 | 9,220 | 261 | 4.71 | 1.436 |
| Feb. 7 | 1830 | 846 | 24.0 | 3.71 | 1.131 | Mar. 12 | 0930 | 5,940 | 168 | 4.22 | 1.286 |

No flow for most of time.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .00 | .00 | .00 | .00 | 1000 | 7200 | 31 | 23 | 14 | .00 | .00 | .00 |
| 2 | .00 | .00 | .00 | .00 | 350 | 3120 | 34 | 29 | .00 | .00 | .00 | .00 |
| 3 | .00 | .00 | .00 | .00 | 270 | 3020 | 51 | 31 | .00 | .00 | .00 | .00 |
| 4 | .00 | .00 | .00 | .00 | 160 | 144 | 89 | 37 | .00 | .00 | .00 | .00 |
| 5 | .00 | .00 | .00 | .00 | 120 | 2770 | 47 | 30 | .00 | .00 | .00 | .00 |
| 6 | 232 | .00 | .00 | .00 | 70 | 974 | 29 | 27 | .00 | .00 | .00 | .00 |
| 7 | 4.2 | .00 | .00 | .00 | 274 | 1540 | 22 | 26 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | 285 | 725 | 27 | 30 | .00 | .00 | .00 | .00 |
| 9 | .00 | .00 | .00 | .00 | 156 | 429 | 47 | 24 | .00 | .00 | .00 | .00 |
| 10 | .00 | .00 | .00 | .00 | 189 | 280 | 110 | 21 | .00 | .00 | .00 | .00 |
| 11 | .00 | .00 | .00 | .00 | 1700 | 695 | 70 | 19 | .00 | .00 | .00 | .00 |
| 12 | .00 | .00 | .00 | .00 | 150 | 2380 | 54 | 21 | .00 | .00 | .00 | .00 |
| 13 | .00 | .00 | .00 | .00 | 100 | 1990 | 37 | 26 | .00 | .00 | .00 | .00 |
| 14 | .00 | .00 | .00 | .00 | 150 | 1600 | 34 | 19 | .00 | .00 | .00 | .00 |
| 15 | .00 | .00 | .00 | 289 | 213 | 680 | 30 | 16 | .00 | .00 | .00 | .00 |
| 16 | .00 | .00 | .00 | 113 | 150 | 343 | 23 | 19 | .00 | .00 | .00 | .00 |
| 17 | .00 | .00 | .00 | 285 | 140 | 224 | 21 | 19 | .00 | .00 | .00 | .00 |
| 18 | .00 | .00 | .00 | 200 | 130 | 167 | 21 | 23 | .00 | .00 | .00 | .00 |
| 19 | .00 | .00 | .00 | 150 | 120 | 129 | 18 | 22 | .00 | .00 | .00 | .00 |
| 20 | .00 | .00 | .00 | 369 | 110 | 82 | 18 | 22 | .00 | .00 | .00 | .00 |
| 21 | .00 | .00 | .00 | 237 | 100 | 80 | 14 | 24 | .00 | .00 | .00 | .00 |
| 22 | .00 | .00 | .00 | 150 | 100 | 56 | 18 | 23 | .00 | .00 | .00 | .00 |
| 23 | .00 | .00 | .00 | 100 | 100 | 73 | 21 | 24 | .00 | .00 | .00 | .00 |
| 24 | .00 | .00 | .00 | 70 | 100 | 56 | 16 | 30 | .00 | .00 | .00 | .00 |
| 25 | .00 | .00 | .00 | 60 | 100 | 43 | 15 | 31 | .00 | .00 | .00 | .00 |
| 26 | .00 | .00 | .00 | 40 | 100 | 32 | 12 | 33 | .00 | .00 | .00 | .00 |
| 27 | .00 | .00 | .00 | 30 | 100 | 27 | 16 | 34 | .00 | .00 | .00 | .00 |
| 28 | .00 | .00 | .00 | 20 | 3000 | 27 | 13 | 36 | .00 | .00 | .00 | .00 |
| 29 | .00 | .00 | .00 | 15 | --- | 20 | 19 | 37 | .00 | .00 | .00 | .00 |
| 30 | .00 | .00 | .00 | 10 | --- | 18 | 23 | 34 | .00 | .00 | .00 | .00 |
| 31 | .00 | --- | .00 | 300 | --- | 24 | --- | 25 | --- | .00 | .00 | --- |
| TOTAL | 236.20 | .00 | .00 | 2438.00 | 9537 | 28948 | 980 | 815 | 14.00 | .00 | .00 | .00 |
| MEAN | 7.62 | .000 | .000 | 78.6 | 341 | 934 | 32.7 | 26.3 | .47 | .000 | .000 | .000 |
| MAX | 232 | .00 | .00 | 369 | 3000 | 7200 | 110 | 37 | 14 | .00 | .00 | .00 |
| MIN | .00 | .00 | .00 | .00 | 70 | 18 | 12 | 16 | .00 | .00 | .00 | .00 |
| AC-FT | 469 | .00 | .00 | 4840 | 18920 | 57420 | 1940 | 1620 | 28 | .00 | .00 | .00 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1977 | TOTAL | 556.20 | MEAN | 1.52 | MAX | 270 | MIN | .00 | AC-FT | 1100 |
| WTR YR 1978 | TOTAL | 42968.20 | MEAN | 118 | MAX | 7200 | MIN | .00 | AC-FT | 85230 |

## 09426000 BILL WILLIAMS RIVER BELOW ALAMO DAM, AZ

LOCATION.--Lat 34°13'51", long 113°36'29", in SE¼SE¼ sec.4, T.10 N., R.13 W., Yuma County, Hydrologic Unit 15030204, on left bank 0.6 mi (1.0 km) downstream from Alamo Dam, 3.7 mi (6.0 km) downstream from Bullard Wash, and 8 mi (13 km) downstream from confluence of Santa Maria and Big Sandy Rivers.

DRAINAGE AREA.--4,730 $mi^2$ (12,250 $km^2$), approximately, of which 400 $mi^2$ (1,040 $km^2$) is below confluence of Santa Maria and Big Sandy Rivers.

PERIOD OF RECORD.--October 1939 to current year. Monthly discharge only for October and November 1939, published in WSP 1313. Prior to October 1943, published as "Williams River near Alamo." October 1943 to September 1967, published as "Bill Williams River near Alamo."

REVISED RECORDS.--WSP 1213: 1939(M). 1941(P).

GAGE.--Water-stage recorder. Altitude of gage is 967 ft (294.7 m), from construction data. Prior to Apr. 9, 1968, at site 1.7 mi (2.7 km) upstream at datum 1,002.95 ft (305.699 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair. Diversions above station for irrigation of about 9,100 acres (36.8 $km^2$), mostly by pumping from ground water. Flow regulated by Alamo Lake, beginning Mar. 28, 1969. Temporary storage and slight regulation of releases through uncontrolled rectangular conduit through Alamo Dam June 23, 1968, to Mar. 27, 1969. Alamo Lake is formed by an earthfill and rockfill dam, completed in 1968. Total capacity of lake is 1,043,000 acre-ft (1,290 $hm^3$). See table below for monthend contents. Maximum contents during year was 334,300 acre-ft (412 $hm^3$) Mar. 21.

AVERAGE DISCHARGE (adjusted for storage in Alamo Lake).--39 years, 91.6 $ft^3/s$ (2.594 $m^3/s$), 66,360 acre-ft/yr (81.8 $hm^3/yr$); median of yearly mean discharges, 43 $ft^3/s$ (1.22 $m^3/s$), 31,200 acre-ft/yr (38 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 65,100 $ft^3/s$ (1,840 $m^3/s$) Aug. 29, 1951, gage height, 30.8 ft (9.39 m), site and datum then in use; no flow at times in most years since 1969.

EXTREMES OUTSIDE PERIOD OF RECORD.--The history of floods that occurred prior to October 1939 is published in WSP 1683. The peak discharges have been correlated with those for Bill Williams River at Planet. The peak discharge for February 1937 has been determined as 105,000 $ft^3/s$ (2,970 $m^3/s$) at a stage of 46 ft (14 m)—site and datum then in use—from rating curve extended above 50,000 $ft^3/s$ (1,400 $m^3/s$) on basis of slope-area measurement for flood of Sept. 6, 1939, at a stage of 39.6 ft (12.07 m), discharge of 86,000 $ft^3/s$ (2,440 $m^3/s$) and known stable high-water control.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 286 $ft^3/s$ (8.10 $m^3/s$) Mar. 4; no flow June 17-22, Sept. 6-10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 13 | 14 | 9.2 | 6.4 | 3.2 | 8.0 | 186 | 194 | 1.1 | .20 | .50 | 1.0 |
| 2 | 13 | 14 | 9.2 | 6.0 | 3.2 | 155 | 188 | 194 | 1.0 | .30 | .50 | 1.0 |
| 3 | 13 | 15 | 9.2 | 6.0 | 3.2 | 278 | 188 | 192 | 1.0 | .30 | .50 | .90 |
| 4 | 7.3 | 15 | 9.2 | 6.0 | 2.9 | 286 | 188 | 192 | 1.0 | .30 | .50 | 1.0 |
| 5 | .50 | 14 | 9.2 | 6.0 | 2.9 | 278 | 190 | 192 | 1.0 | .30 | .40 | .56 |
| 6 | .40 | 14 | 9.2 | 4.3 | 2.9 | 261 | 190 | 192 | 1.1 | .30 | .40 | .00 |
| 7 | .40 | 14 | 9.2 | 2.9 | 2.9 | 264 | 190 | 192 | 1.0 | .20 | .50 | .00 |
| 8 | .50 | 14 | 9.2 | 2.9 | 2.9 | 267 | 190 | 192 | .90 | .20 | .50 | .00 |
| 9 | .50 | 15 | 8.8 | 2.9 | 2.9 | 270 | 190 | 192 | .90 | .20 | .50 | .00 |
| 10 | .50 | 18 | 8.8 | 2.9 | 2.9 | 207 | 190 | 192 | .90 | .20 | .50 | .00 |
| 11 | 7.1 | 19 | 8.8 | 2.9 | 3.2 | 37 | 190 | 194 | .90 | .20 | .50 | 2.0 |
| 12 | 13 | 19 | 8.8 | 2.9 | 3.2 | 15 | 192 | 194 | .80 | .20 | .50 | 1.0 |
| 13 | 13 | 19 | 8.8 | 2.9 | 3.4 | 1.5 | 192 | 194 | .80 | .20 | .60 | 1.0 |
| 14 | 14 | 19 | 8.8 | 2.9 | 3.6 | 1.7 | 190 | 194 | .70 | .20 | .50 | 1.0 |
| 15 | 14 | 18 | 8.8 | 3.2 | 3.6 | 46 | 190 | 194 | .30 | .20 | .50 | 1.0 |
| 16 | 14 | 18 | 8.8 | 3.2 | 3.6 | 176 | 190 | 192 | .10 | .20 | .50 | 1.0 |
| 17 | 14 | 18 | 8.0 | 3.4 | 3.6 | 176 | 188 | 192 | .00 | .30 | .60 | 1.0 |
| 18 | 14 | 19 | 8.0 | 3.4 | 3.6 | 176 | 188 | 192 | .00 | .30 | .60 | 1.0 |
| 19 | 15 | 19 | 8.0 | 3.4 | 3.6 | 178 | 188 | 192 | .00 | .30 | .50 | 1.0 |
| 20 | 15 | 16 | 8.0 | 3.4 | 3.6 | 178 | 188 | 192 | .00 | .30 | .60 | 1.0 |
| 21 | 15 | 14 | 8.0 | 3.4 | 3.6 | 180 | 190 | 192 | .00 | .40 | .80 | 1.0 |
| 22 | 16 | 14 | 8.0 | 3.4 | 3.6 | 182 | 190 | 76 | .00 | .40 | .80 | 1.0 |
| 23 | 16 | 12 | 8.0 | 3.4 | 3.6 | 182 | 190 | 1.0 | .05 | .40 | .80 | 1.0 |
| 24 | 15 | 10 | 8.0 | 3.2 | 3.4 | 182 | 190 | 1.0 | .10 | .40 | .80 | 1.0 |
| 25 | 15 | 9.6 | 6.4 | 3.2 | 3.4 | 184 | 190 | 1.0 | .20 | .40 | .80 | 1.0 |
| 26 | 15 | 9.6 | 5.7 | 3.2 | 3.4 | 184 | 192 | 1.1 | .20 | .50 | .80 | 1.0 |
| 27 | 15 | 9.6 | 5.7 | 3.2 | 3.4 | 186 | 194 | 1.1 | .20 | .40 | .80 | 1.0 |
| 28 | 15 | 9.2 | 5.7 | 3.2 | 6.4 | 186 | 194 | 1.2 | .20 | .50 | .90 | 1.0 |
| 29 | 14 | 9.2 | 5.7 | 3.2 | --- | 186 | 194 | 1.2 | .20 | .40 | .90 | 1.0 |
| 30 | 14 | 9.2 | 6.0 | 3.2 | --- | 188 | 194 | 1.2 | .20 | .40 | 1.0 | 1.0 |
| 31 | 14 | --- | 6.0 | 3.2 | --- | 186 | --- | 1.1 | --- | .50 | 1.0 | --- |
| TOTAL | 346.20 | 437.4 | 249.2 | 113.7 | 95.7 | 5285.2 | 5704 | 4131.9 | 14.85 | 9.60 | 19.60 | 25.46 |
| MEAN | 11.2 | 14.6 | 8.04 | 3.67 | 3.42 | 170 | 190 | 133 | .50 | .31 | .63 | .85 |
| MAX | 16 | 19 | 9.2 | 6.4 | 6.4 | 286 | 194 | 194 | 1.1 | .50 | 1.0 | 2.0 |
| MIN | .40 | 9.2 | 5.7 | 2.9 | 2.9 | 1.5 | 186 | 1.0 | .00 | .20 | .40 | .00 |
| AC-FT | 687 | 868 | 494 | 226 | 190 | 10480 | 11310 | 8200 | 29 | 19 | 39 | 50 |
| (†) | 28070 | 27200 | 27040 | 39440 | 91220 | 332400 | 320800 | 311600 | 307300 | 304200 | 300800 | 296800 |

CAL YR 1977 TOTAL 5096.70 MEAN 14.0 MAX 51 MIN .40 AC-FT 10110 ‡ -8750
WTR YR 1978 TOTAL 16432.81 MEAN 45.0 MAX 286 MIN .00 AC-FT 32590 ‡ +268300

† Monthend contents, in acre-feet, in Alamo Lake, furnished by Corps of Engineers.
‡ Change in contents, in acre-feet.

## 09426600 BILL WILLIAMS RIVER BELOW MINERAL WASH NEAR PLANET, AZ
(National stream-quality accounting network and pesticide station)

LOCATION.--Lat 34°15'43", long 114°01'40", in SE¼SW¼ sec.27, T.11 N., R.17 W., on boundary between Mohave and Yuma Counties, Hydrologic Unit 15030204, at ford 0.8 mi (1.3 km) downstream from Mineral Wash, 3.6 mi (5.8 km) upstream from Havasu Lake National Wildlife Refuge, 4.1 mi (6.6 km) west of Planet Ranch, 5.2 mi (8.4 km) upstream from waterline of Havasu Lake at elevation 450 ft (137 m) above mean sea level, and approximately 30 mi (50 km) downstream from Alamo Dam.

DRAINAGE AREA.--5,140 $mi^2$ (13,310 $km^2$) approximately, of which approximately 410 $mi^2$ (1,060 $km^2$) is below Alamo Dam.

PERIOD OF RECORD.--January 1970 to January 1972, October 1974 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1974 to current year.
WATER TEMPERATURES: October 1974 to current year.

REMARKS.--Streamflow ungaged.

COOPERATION.--Pesticide analysis performed by Environmental Protection Agency.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,110 micromhos Aug. 17, 1977; minimum daily, 319 micromhos Feb. 23, 1978.
WATER TEMPERATURES: Maximum, 35.0°C July 3, 6, 1976; minimum, 9.0°C Mar. 26, 1976.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,080 micromhos Jan. 15, 16, 1977; minimum daily, 319 micromhos Feb. 23, 1978.
WATER TEMPERATURES: Maximum, 31.0°C July 30; minimum 10.0°C Apr. 6.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | TUR-BID-ITY (JTU) | TUR-BID-ITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) | COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) | STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 03... | 1010 | 1.5 | 990 | 7.6 | 22.0 | 4 | -- | 8.7 | 380 | 980 | 240 | 0 |
| NOV | | | | | | | | | | | | |
| 07... | 1050 | 2.2 | 1010 | 7.7 | 17.0 | 2 | -- | 8.8 | 120 | 340 | 250 | 0 |
| DEC | | | | | | | | | | | | |
| 05... | 1050 | 3.8 | 1020 | 7.8 | 15.0 | 1 | -- | 9.6 | K23 | 280 | 260 | 0 |
| JAN | | | | | | | | | | | | |
| 09... | 1100 | 7.5 | 1010 | 7.6 | 13.0 | 1 | -- | 8.5 | K1 | 190 | 250 | 0 |
| FEB | | | | | | | | | | | | |
| 06... | 1040 | E8.0 | 995 | 7.8 | 16.0 | 15 | -- | 9.0 | K1 | 190 | 250 | 0 |
| MAR | | | | | | | | | | | | |
| 06... | 1030 | 246 | 440 | 7.9 | 12.0 | 70000 | -- | 8.4 | 33000 | 66000 | 130 | 0 |
| APR | | | | | | | | | | | | |
| 10... | 1130 | 52 | 501 | 8.1 | 18.5 | 470 | -- | 9.8 | 450 | 420 | 140 | 2 |
| MAY | | | | | | | | | | | | |
| 08... | 1015 | 52 | 533 | 7.7 | 17.0 | 310 | -- | 8.8 | 600 | 800 | 140 | 0 |
| JUN | | | | | | | | | | | | |
| 12... | 1100 | 6.2 | 956 | 7.8 | 24.5 | 95 | -- | 7.4 | 800 | 1500 | 250 | 2 |
| JUL | | | | | | | | | | | | |
| 10... | 0950 | 3.8 | 952 | 7.5 | 27.0 | -- | 70 | 5.6 | 3000 | 6000 | 240 | -- |
| AUG | | | | | | | | | | | | |
| 07... | 1015 | 3.1 | 956 | 8.2 | 27.0 | -- | 75 | 6.1 | 2100 | 3600 | 230 | 0 |
| SEP | | | | | | | | | | | | |
| 11... | 1005 | 3.1 | 972 | 7.7 | 22.0 | -- | 50 | 6.1 | 1400 | 3000 | 240 | -- |

E Estimated.
K Based on non-ideal colony count.

09426600 BILL WILLIAMS RIVER BELOW MINERAL WASH NEAR PLANET, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | BICAR-BONATE (MG/L AS HCO3) | CAR-BONATE (MG/L AS CO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 03... | 62 | 20 | 110 | 3.1 | 7.3 | 310 | 0 | 87 | 110 | 1.5 | 35 | 584 |
| NOV | | | | | | | | | | | | |
| 07... | 64 | 21 | 130 | 3.6 | 7.3 | 320 | 0 | 87 | 120 | 1.5 | 34 | 601 |
| DEC | | | | | | | | | | | | |
| 05... | 64 | 23 | 130 | 3.5 | 7.1 | 320 | 0 | 82 | 130 | 1.5 | 34 | 587 |
| JAN | | | | | | | | | | | | |
| 09... | 62 | 22 | 120 | 3.3 | 7.0 | 300 | 0 | 92 | 120 | 1.6 | 33 | 601 |
| FEB | | | | | | | | | | | | |
| 06... | 64 | 23 | 120 | 3.3 | 7.0 | 310 | 0 | 85 | 120 | 1.4 | 32 | 588 |
| MAR | | | | | | | | | | | | |
| 06... | 35 | 11 | 38 | 1.4 | 7.3 | 220 | 0 | 32 | 21 | .6 | 22 | 260 |
| APR | | | | | | | | | | | | |
| 10... | 37 | 12 | 53 | 1.9 | 4.9 | 170 | 0 | 46 | 44 | .8 | 18 | 287 |
| MAY | | | | | | | | | | | | |
| 08... | 38 | 11 | 53 | 1.9 | 5.1 | 180 | 0 | 48 | 50 | .8 | 20 | 309 |
| JUN | | | | | | | | | | | | |
| 12... | 63 | 22 | 110 | 3.0 | 7.8 | 300 | 0 | 84 | 100 | 1.3 | 32 | 554 |
| JUL | | | | | | | | | | | | |
| 10... | 60 | 21 | 110 | 3.1 | 7.0 | -- | -- | 82 | 110 | 1.5 | 32 | 566 |
| AUG | | | | | | | | | | | | |
| 07... | 58 | 20 | 120 | 3.5 | 7.2 | -- | -- | 82 | 110 | 1.5 | 33 | 566 |
| SEP | | | | | | | | | | | | |
| 11... | 63 | 19 | 110 | 3.1 | 7.2 | -- | -- | 88 | 110 | 1.5 | 33 | 579 |

| DATE | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER AC-FT) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) | NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO-GEN, TOTAL (MG/L AS N) | PHOS-PHORUS, TOTAL (MG/L AS P) | PHOS-PHORUS, DIS-SOLVED (MG/L AS P) | PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 03... | 587 | .79 | .17 | .20 | .02 | -- | -- | -- | .03 | .02 | .04 |
| NOV | | | | | | | | | | | |
| 07... | 624 | .82 | .12 | .22 | .01 | -- | -- | -- | .04 | .03 | .01 |
| DEC | | | | | | | | | | | |
| 05... | 632 | .80 | .30 | .24 | .00 | -- | -- | -- | .02 | .03 | .01 |
| JAN | | | | | | | | | | | |
| 09... | 607 | .82 | .29 | .35 | .11 | -- | -- | -- | .04 | .04 | .04 |
| FEB | | | | | | | | | | | |
| 06... | 607 | .80 | .52 | .34 | .00 | .36 | .36 | .88 | .07 | .03 | .01 |
| MAR | | | | | | | | | | | |
| 06... | 279 | .35 | .85 | .80 | .26 | 130 | 130 | 130 | 1.0 | .17 | .18 |
| APR | | | | | | | | | | | |
| 10... | 303 | .39 | .71 | .64 | .09 | 1.7 | 1.8 | 2.5 | 1.2 | .12 | .11 |
| MAY | | | | | | | | | | | |
| 08... | 317 | .42 | .49 | .53 | .17 | 1.1 | 1.3 | 1.8 | .80 | .10 | .09 |
| JUN | | | | | | | | | | | |
| 12... | 574 | .75 | 1.1 | 1.1 | .17 | .58 | .75 | 1.9 | .20 | .03 | .04 |
| JUL | | | | | | | | | | | |
| 10... | -- | .77 | .56 | .59 | .03 | .69 | .72 | 1.3 | .17 | .03 | .02 |
| AUG | | | | | | | | | | | |
| 07... | 576 | .77 | .59 | -- | .09 | .54 | .63 | 1.2 | .18 | .03 | -- |
| SEP | | | | | | | | | | | |
| 11... | -- | .79 | .63 | .67 | .05 | .66 | .71 | 1.3 | .23 | .03 | .03 |

09426600 BILL WILLIAMS RIVER BELOW MINERAL WASH NEAR PLANET, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | IRON, DIS-SOLVED (UG/L AS FE) | LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) | LEAD, DIS-SOLVED (UG/L AS PB) | MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) | MANGA-NESE, DIS-SOLVED (UG/L AS MN) | MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) | MERCURY DIS-SOLVED (UG/L AS HG) | SELE-NIUM, TOTAL (UG/L AS SE) | SELE-NIUM, DIS-SOLVED (UG/L AS SE) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 03... | 30 | -- | 1 | -- | 10 | -- | -- | -- | 0 |
| NOV | | | | | | | | | |
| 07... | 30 | <100 | 24 | 20 | 40 | .0 | .0 | 0 | 0 |
| DEC | | | | | | | | | |
| 05... | 20 | -- | 10 | -- | 20 | -- | -- | -- | 0 |
| JAN | | | | | | | | | |
| 09... | 40 | -- | 25 | -- | 30 | -- | -- | -- | 0 |
| FEB | | | | | | | | | |
| 06... | 30 | 36 | 20 | 50 | 30 | .1 | .0 | 0 | 0 |
| MAR | | | | | | | | | |
| 06... | 60 | -- | <5 | -- | 20 | -- | -- | -- | 0 |
| APR | | | | | | | | | |
| 10... | 60 | -- | 14 | -- | 20 | -- | -- | -- | 0 |
| MAY | | | | | | | | | |
| 08... | 50 | 25 | 2 | 460 | 60 | .1 | .0 | 0 | 0 |
| JUN | | | | | | | | | |
| 12... | 0 | -- | 0 | -- | 80 | -- | -- | -- | 0 |
| JUL | | | | | | | | | |
| 10... | 20 | -- | 2 | -- | 100 | -- | -- | -- | 0 |
| AUG | | | | | | | | | |
| 07... | <10 | 13 | 0 | 210 | 60 | .2 | .0 | 0 | 0 |
| SEP | | | | | | | | | |
| 11... | 10 | -- | 0 | -- | 40 | -- | -- | -- | 0 |

| DATE | ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) | ZINC, DIS-SOLVED (UG/L AS ZN) | CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) | CARBON, ORGANIC DIS-SOLVED (MG/L AS C) | ARSENIC TOTAL (UG/L AS AS) | ARSENIC DIS-SOLVED (UG/L AS AS) | BORON, TOTAL RECOV-ERABLE (UG/L AS B) | BORON, DIS-SOLVED (UG/L AS B) | CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 03... | -- | 0 | -- | -- | -- | 6 | -- | 290 | -- |
| NOV | | | | | | | | | |
| 07... | 50 | 10 | -- | -- | 7 | 8 | 330 | 290 | <10 |
| DEC | | | | | | | | | |
| 05... | -- | 10 | -- | -- | -- | 6 | -- | 300 | -- |
| JAN | | | | | | | | | |
| 09... | -- | 10 | -- | -- | -- | 5 | -- | 290 | -- |
| FEB | | | | | | | | | |
| 06... | 30 | 10 | .5 | 1.8 | 5 | 6 | 300 | 280 | 3 |
| MAR | | | | | | | | | |
| 06... | -- | 10 | -- | -- | -- | 9 | -- | 210 | -- |
| APR | | | | | | | | | |
| 10... | -- | 0 | -- | -- | -- | 9 | -- | 190 | -- |
| MAY | | | | | | | | | |
| 08... | 80 | 10 | 3.7 | 6.3 | 4 | 6 | 230 | 160 | 2 |
| JUN | | | | | | | | | |
| 12... | -- | 5 | -- | -- | -- | 5 | -- | 270 | -- |
| JUL | | | | | | | | | |
| 10... | -- | 0 | -- | -- | -- | 6 | -- | 290 | -- |
| AUG | | | | | | | | | |
| 07... | 40 | 10 | 1.6 | 3.2 | 8 | 5 | 310 | 290 | 2 |
| SEP | | | | | | | | | |
| 11... | -- | 10 | -- | -- | -- | 10 | -- | 300 | -- |

< Actual value is known to be less than value shown.

09426600 BILL WILLIAMS RIVER BELOW MINERAL WASH NEAR PLANET, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | CADMIUM DIS-SOLVED (UG/L AS CD) | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) | CHRO-MIUM, DIS-SOLVED (UG/L AS CR) | COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) | COBALT, DIS-SOLVED (UG/L AS CO) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) | COPPER, DIS-SOLVED (UG/L AS CU) | IRON, TOTAL RECOV-ERABLE (UG/L AS FE) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 03... | -- | -- | -- | -- | -- | -- | 2 | -- |
| NOV | | | | | | | | |
| 07... | 3 | 4 | 5 | <50 | 0 | 0 | 0 | 170 |
| DEC | | | | | | | | |
| 05... | -- | -- | -- | -- | -- | -- | 1 | -- |
| JAN | | | | | | | | |
| 09... | -- | -- | -- | -- | -- | -- | 4 | -- |
| FEB | | | | | | | | |
| 06... | 3 | 0 | 0 | 0 | 0 | 18 | 5 | 510 |
| MAR | | | | | | | | |
| 06... | -- | -- | -- | -- | -- | -- | 19 | -- |
| APR | | | | | | | | |
| 10... | -- | -- | -- | -- | -- | -- | 4 | -- |
| MAY | | | | | | | | |
| 08... | 1 | 10 | 10 | 9 | 0 | 50 | 3 | 16000 |
| JUN | | | | | | | | |
| 12... | -- | -- | -- | -- | -- | -- | 1 | -- |
| JUL | | | | | | | | |
| 10... | -- | -- | -- | -- | -- | -- | 0 | -- |
| AUG | | | | | | | | |
| 07... | <1 | 10 | 0 | 5 | <1 | 30 | 1 | 2900 |
| SEP | | | | | | | | |
| 11... | -- | -- | -- | -- | -- | -- | 1 | -- |

| DATE | TIME | PCB, TOTAL (UG/L) | PCB, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | ALDRIN, TOTAL (UG/L) | ALDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | ATRA-ZINE, TOTAL (UG/L) | CHLOR-DANE, TOTAL (UG/L) | CHLOR-DANE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | DDD, TOTAL (UG/L) | DDD, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | DDE, TOTAL (UG/L) | P,P' DDE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FEB | | | | | | | | | | | | |
| 06... | 1040 | ND | -- | ND | -- | ND | ND | -- | ND | -- | ND | -- |
| MAY | | | | | | | | | | | | |
| 08... | 1015 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | .3 |
| AUG | | | | | | | | | | | | |
| 07... | 1015 | ND | -- | ND | -- | ND | ND | -- | ND | -- | ND | -- |

| DATE | DDT, TOTAL (UG/L) | P,P' DDT, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | DI-AZINON, TOTAL (UG/L) | DI-AZINON, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | DI-ELDRIN TOTAL (UG/L) | DI-ELDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | ENDRIN, TOTAL (UG/L) | ENDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | ETHION, TOTAL (UG/L) | ETHION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | HEPTA-CHLOR, TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| FEB | | | | | | | | | | | |
| 06... | ND | -- | ND | -- | ND | -- | ND | -- | ND | -- | ND |
| MAY | | | | | | | | | | | |
| 08... | ND | .8 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| AUG | | | | | | | | | | | |
| 07... | ND | -- | ND | -- | ND | -- | ND | -- | ND | -- | ND |

< Actual value is known to be less than value shown.
ND Material specifically analyzed for but not detected.

09426600 BILL WILLIAMS RIVER BELOW MINERAL WASH NEAR PLANET, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | HEPTA-CHLOR, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | HEPTA-CHLOR EPOXIDE TOTAL (UG/L) | HEPTA-CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG) | LINDANE TOTAL (UG/L) | LINDANE TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | MALA-THION, TOTAL (UG/L) | MALA-THION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | METH-OXY-CHLOR, TOTAL (UG/L) | METH-OXY-CHLOR, TOT. IN BOTTOM MATL. (UG/KG) | METHYL PARA-THION, TOTAL (UG/L) | METHYL PARA-THION, TOT. IN BOTTOM MATL. (UG/KG) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| FEB | | | | | | | | | | | |
| 06... | -- | ND | -- | ND | -- | ND | -- | ND | -- | ND | -- |
| MAY | | | | | | | | | | | |
| 08... | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| AUG | | | | | | | | | | | |
| 07... | -- | ND | -- | ND | -- | ND | -- | ND | -- | ND | -- |

| DATE | METHYL TRI-THION, TOTAL (UG/L) | METHYL TRI-THION, TOT. IN BOTTOM MATL. (UG/KG) | PARA-THION, TOTAL (UG/L) | PARA-THION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | TOX-APHENE, TOTAL (UG/L) | TOXA-PHENE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | TOTAL TRI-THION (UG/L) | TRI-THION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | 2,4-D, TOTAL (UG/L) | 2,4,5-T TOTAL (UG/L) | SILVEX, TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| FEB | | | | | | | | | | | |
| 06... | ND | -- | ND | -- | ND | -- | ND | -- | ND | ND | ND |
| MAY | | | | | | | | | | | |
| 08... | ND | ND | ND | ND | ND | ND | ND | ND | -- | -- | -- |
| AUG | | | | | | | | | | | |
| 07... | ND | -- | ND | -- | ND | -- | ND | -- | -- | -- | -- |

| DATE | TIME | PHYTO-PLANK-TON, TOTAL (CELLS PER ML) | PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M | PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M | SEDI-MENT, SUS-PENDED (MG/L) | SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) | SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM |
|---|---|---|---|---|---|---|---|
| NOV | | | | | | | |
| 07... | 1050 | 210 | .394 | .315 | 3 | .02 | 61 |
| FEB | | | | | | | |
| 06... | 1040 | 890 | -- | -- | 12 | .26 | 76 |
| MAY | | | | | | | |
| 08... | 1015 | 4100 | 1.81 | 1.02 | 566 | 79 | 100 |
| JUN | | | | | | | |
| 12... | 1100 | 890 | -- | -- | -- | -- | -- |
| JUL | | | | | | | |
| 10... | 0950 | 1800 | -- | -- | -- | -- | -- |
| AUG | | | | | | | |
| 07... | 1015 | -- | 18.7 | 16.6 | 111 | .93 | -- |
| SEP | | | | | | | |
| 11... | 1005 | 870 | -- | -- | 165 | 1.4 | 99 |

ND Material specifically analyzed for but not detected.

09426600 BILL WILLIAMS RIVER BELOW MINERAL WASH NEAR PLANET, AZ--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 995 | 997 | 1020 | 1020 | 1020 | 478 | 529 | 516 | 943 | 941 | 943 | 944 |
| 2 | 995 | 1000 | 1020 | 989 | 984 | 918 | 526 | 521 | 941 | 960 | 937 | 950 |
| 3 | 1000 | 1000 | 1020 | 1020 | 996 | 900 | 521 | 521 | 944 | 965 | 954 | 943 |
| 4 | 994 | 1000 | 1020 | 1010 | 994 | 642 | 514 | 529 | 955 | 964 | 957 | 944 |
| 5 | 994 | 1000 | 1020 | 1020 | 1000 | 682 | 525 | 531 | 941 | 962 | 951 | 929 |
| 6 | 979 | 999 | 1020 | 1010 | 997 | 953 | 484 | 535 | 960 | 964 | 946 | 939 |
| 7 | 999 | 989 | 1020 | 1020 | 1000 | 965 | 481 | 533 | 947 | 962 | 951 | 933 |
| 8 | 991 | 1010 | 1020 | 1020 | 1000 | 959 | 492 | 535 | 939 | 964 | 956 | 963 |
| 9 | 995 | 1010 | 1020 | 1020 | 996 | 964 | 530 | 536 | 952 | 969 | 953 | 958 |
| 10 | 996 | 1010 | 1020 | 996 | 1000 | 962 | 491 | 534 | 950 | 931 | 953 | 963 |
| 11 | 1000 | 1010 | 1020 | 902 | 994 | 955 | 486 | 536 | 942 | 934 | 952 | 955 |
| 12 | 1000 | 1010 | 1020 | 901 | 1000 | 964 | 455 | 533 | 914 | 915 | 946 | 977 |
| 13 | 1000 | 1010 | 1020 | 1010 | 997 | 954 | 434 | 537 | 932 | 916 | 950 | 977 |
| 14 | 995 | 1010 | 1020 | 1070 | 998 | 515 | 462 | 535 | 941 | 917 | 951 | 978 |
| 15 | 990 | 1010 | 1020 | 1060 | 1000 | 517 | 456 | 534 | 946 | 927 | 904 | 980 |
| 16 | 989 | 1010 | 1010 | 1080 | 1000 | 516 | 483 | 532 | 953 | 925 | 944 | 969 |
| 17 | 1000 | 1010 | 1020 | 1010 | 991 | 519 | 516 | 528 | 945 | 922 | 945 | 959 |
| 18 | 1010 | 1010 | 1020 | 995 | 993 | 518 | 517 | 537 | 949 | 930 | 946 | 968 |
| 19 | 987 | 1010 | 1020 | 993 | 994 | 522 | 517 | 528 | 943 | 935 | 939 | 968 |
| 20 | 990 | 1010 | 1020 | 996 | 994 | 517 | 519 | 528 | 955 | 927 | 944 | 969 |
| 21 | 989 | 1010 | 1020 | 1010 | 992 | 527 | 516 | 987 | 953 | 933 | 931 | 968 |
| 22 | 1010 | 969 | 1020 | 1000 | 994 | 526 | 517 | 987 | 952 | 925 | 954 | 968 |
| 23 | 1000 | 1010 | 1020 | 1000 | 519 | 526 | 519 | 987 | 951 | 930 | 906 | 967 |
| 24 | 1000 | 1010 | 1020 | 1000 | 912 | 526 | 517 | 970 | 940 | 925 | 953 | 968 |
| 25 | 1010 | 1000 | 1020 | 993 | 551 | 517 | 514 | 965 | 950 | 943 | 953 | 967 |
| 26 | 1010 | 1010 | 1020 | 996 | 415 | 515 | 519 | 969 | 959 | 943 | 953 | 971 |
| 27 | 1010 | 1010 | 1020 | 998 | 595 | 519 | 521 | 991 | 975 | 945 | 951 | 970 |
| 28 | 1000 | 1020 | 1020 | 992 | 401 | 521 | 518 | 965 | 942 | 945 | 950 | 965 |
| 29 | 1010 | 1020 | 1020 | 969 | --- | 518 | 518 | 992 | 963 | 943 | 951 | 967 |
| 30 | 1010 | 1020 | 1020 | 1000 | --- | 516 | 516 | 971 | 966 | 945 | 965 | 967 |
| 31 | 1010 | --- | 1020 | 964 | --- | 523 | --- | 969 | --- | 938 | 959 | --- |
| MEAN | 999 | 1010 | 1020 | 1000 | 883 | 666 | 504 | 691 | 948 | 940 | 947 | 961 |

WTR YR 1978 MEAN 801 MAX 1080 MIN 319

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 25.0 | 16.0 | 15.0 | 15.0 | 13.0 | 15.5 | 12.5 | 18.0 | 20.0 | 24.5 | 27.0 | 26.0 |
| 2 | 26.0 | 20.0 | 14.0 | 17.5 | 13.0 | 17.5 | 12.5 | 20.0 | 20.0 | 25.5 | 27.5 | 26.0 |
| 3 | 25.0 | 19.0 | 13.0 | 17.0 | 12.5 | 17.0 | 18.0 | 20.0 | 19.5 | 25.0 | 27.5 | 26.0 |
| 4 | 23.0 | 21.0 | 13.0 | 15.5 | 14.5 | 14.0 | 19.0 | 22.0 | 22.5 | 24.0 | 27.5 | 26.5 |
| 5 | 22.0 | 20.0 | 14.0 | 15.0 | 13.5 | 14.0 | 12.0 | 22.0 | 24.0 | 24.0 | 27.0 | 24.0 |
| 6 | 23.0 | 19.0 | 12.0 | 14.5 | 17.5 | 15.5 | 10.0 | 17.0 | 25.0 | 24.5 | 27.5 | 26.0 |
| 7 | 22.0 | 17.0 | 12.0 | 13.5 | 16.5 | 17.0 | 11.5 | 17.0 | 22.0 | 23.0 | 30.0 | 24.5 |
| 8 | 25.0 | 19.0 | 20.0 | 14.0 | 17.0 | 17.0 | 14.5 | 17.0 | 21.5 | 25.0 | 24.5 | 22.0 |
| 9 | 24.0 | 18.0 | 13.0 | 14.5 | 18.0 | 15.5 | 19.0 | 17.5 | 24.0 | 24.0 | 24.0 | 22.5 |
| 10 | 19.0 | 15.0 | 12.0 | 15.5 | 16.5 | 15.0 | 23.5 | 17.0 | 26.0 | 25.0 | 28.0 | 22.5 |
| 11 | 18.0 | 20.0 | 12.0 | 14.5 | 17.0 | 15.5 | 19.5 | 18.5 | 26.5 | 24.5 | 27.5 | 22.5 |
| 12 | 18.0 | 21.0 | 15.0 | 12.5 | 15.5 | 17.5 | 19.5 | 19.0 | 27.5 | 28.5 | 24.0 | 22.5 |
| 13 | 18.0 | 25.0 | 11.0 | 15.0 | 17.5 | 15.5 | 19.0 | 19.0 | 27.0 | 27.5 | 23.5 | 22.5 |
| 14 | 24.0 | 24.0 | 13.0 | 15.0 | 18.0 | 14.0 | 19.0 | 18.0 | 22.0 | 25.5 | 24.5 | 23.0 |
| 15 | 23.0 | 24.0 | 16.0 | 14.0 | 16.0 | 14.0 | 18.5 | 19.0 | 24.0 | 24.0 | 23.5 | 23.0 |
| 16 | 16.5 | 17.0 | 15.0 | 13.5 | 14.5 | 15.5 | 19.5 | 16.5 | 25.5 | 24.5 | 24.0 | 20.0 |
| 17 | 20.0 | 21.0 | 15.0 | 15.0 | 15.0 | 14.5 | 15.0 | 17.5 | 25.0 | 24.0 | 24.0 | 20.0 |
| 18 | 19.0 | 20.0 | 14.0 | 14.5 | 13.0 | 15.0 | 16.0 | 24.5 | 26.5 | 25.5 | 25.0 | 18.5 |
| 19 | 22.0 | 13.0 | 15.0 | 16.0 | 13.0 | 14.0 | 17.5 | 24.0 | 26.5 | 25.0 | 23.0 | 18.5 |
| 20 | 18.5 | 14.0 | 16.0 | 15.5 | 14.0 | 14.0 | 17.0 | 25.0 | 22.0 | 25.0 | 23.0 | 20.0 |
| 21 | 19.0 | 15.0 | 13.0 | 15.0 | 14.0 | 22.0 | 17.5 | 25.0 | 22.0 | 24.5 | 29.0 | 18.5 |
| 22 | 22.0 | 17.0 | 13.0 | 14.0 | 16.0 | 21.5 | 18.0 | 25.0 | 26.0 | 24.0 | 27.5 | 19.5 |
| 23 | 23.0 | 18.0 | 15.0 | 13.0 | 18.0 | 23.0 | 19.0 | 24.5 | 24.5 | 24.0 | 27.0 | 19.0 |
| 24 | 23.0 | 19.0 | 17.0 | 12.5 | 16.5 | 22.0 | 19.0 | 19.5 | 27.5 | 24.5 | 29.0 | 20.0 |
| 25 | 15.0 | 16.0 | 13.0 | 14.5 | 18.0 | 20.5 | 19.5 | 19.0 | 27.5 | 25.5 | 27.0 | 22.5 |
| 26 | 18.0 | 15.0 | 13.0 | 15.0 | 14.0 | 20.0 | 19.5 | 20.0 | 22.5 | 27.0 | 27.0 | 22.5 |
| 27 | 17.0 | 14.0 | 11.0 | 14.0 | 16.0 | 21.0 | 10.5 | 19.0 | 22.0 | 25.5 | 26.0 | 22.5 |
| 28 | 21.0 | 13.0 | 14.0 | 14.5 | 14.5 | 19.0 | 12.5 | 19.0 | 23.0 | 27.0 | 28.5 | 21.5 |
| 29 | 23.0 | 15.0 | 11.0 | 14.5 | --- | 23.0 | 12.0 | 20.0 | 24.0 | 28.5 | 26.0 | 21.0 |
| 30 | 19.0 | 14.0 | 16.0 | 13.0 | --- | 22.0 | 17.5 | 18.5 | 21.0 | 31.0 | 22.0 | 21.0 |
| 31 | 20.0 | --- | 17.0 | 14.5 | --- | 17.5 | --- | 19.0 | --- | 27.0 | 23.0 | --- |
| MEAN | 21.0 | 18.0 | 14.0 | 14.5 | 15.5 | 17.5 | 16.5 | 20.0 | 24.0 | 25.5 | 26.0 | 22.0 |

WTR YR 1978 MEAN 19.5 MAX 31.0 MIN 10.0

09426600 BILL WILLIAMS RIVER BELOW MINERAL WASH NEAR PLANET, AZ--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

PHYTOPLANKTON

| DATE | NOV 7,77 | FEB 6,78 | MAY 8,78 | JUN 12,78 |
|---|---|---|---|---|
| TIME | 1050 | 1040 | 1015 | 1100 |
| TOTAL CELLS/ML | 210 | 890 | 4100 | 890 |
| DIVERSITY: DIVISION | 0.4 | 1.0 | 1.0 | 1.1 |
| .CLASS | 0.4 | 1.0 | 1.0 | 1.1 |
| ..ORDER | 0.8 | 1.3 | 1.1 | 1.1 |
| ...FAMILY | 2.6 | 2.4 | 2.2 | 2.0 |
| ....GENUS | 2.6 | 2.6 | 2.2 | 2.1 |

| ORGANISM | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT |
|---|---|---|---|---|---|---|---|---|
| CHLOROPHYTA (GREEN ALGAE) | | | | | | | | |
| .CHLOROPHYCEAE | | | | | | | | |
| ..CHLOROCOCCALES | | | | | | | | |
| ...CHARACIACEAE | | | | | | | | |
| ....SCHROEDERIA | 5 | 3 | -- | - | -- | - | -- | - |
| ...OOCYSTACEAE | | | | | | | | |
| ....OOCYSTIS | -- | - | -- | - | -- | - | 29 | 3 |
| ...SCENEDESMACEAE | | | | | | | | |
| ....SCENEDESMUS | -- | - | -- | - | -- | - | -- | - |
| ..VOLVOCALES | | | | | | | | |
| ...CHLAMYDOMONADACEAE | | | | | | | | |
| ....CARTERIA | 11 | 5 | -- | - | -- | - | -- | - |
| ....CHLAMYDOMONAS | -- | - | 290# | 33 | 160 | 4 | 14 | 2 |
| ...PHACOTACEAE | | | | | | | | |
| ....PHACOTUS | -- | - | -- | - | -- | - | -- | - |
| ..ZYGNEMATALES | | | | | | | | |
| ...DESMIDIACEAE | | | | | | | | |
| ....CLOSTERIUM | -- | - | -- | - | 650# | 16 | -- | - |
| CHRYSOPHYTA | | | | | | | | |
| .BACILLARIOPHYCEAE | | | | | | | | |
| ..CENTRALES | | | | | | | | |
| ...COSCINODISCACEAE | | | | | | | | |
| ....CYCLOTELLA | 16 | 8 | 36 | 4 | -- | - | -- | - |
| ....STEPHANODISCUS | -- | - | -- | - | -- | - | -- | - |
| ..PENNALES | | | | | | | | |
| ...ACHNANTHACEAE | | | | | | | | |
| ....ACHNANTHES | -- | - | 36 | 4 | -- | - | -- | - |
| ....COCCONEIS | 64# | 31 | 94 | 11 | -- | - | -- | - |
| ....RHOICOSPHENIA | -- | - | 14 | 2 | -- | - | -- | - |
| ...CYMBELLACEAE | | | | | | | | |
| ....CYMBELLA | 5 | 3 | -- | - | 160 | 4 | -- | - |
| ...DIATOMACEAE | | | | | | | | |
| ....DIATOMA | -- | - | -- | - | -- | - | -- | - |
| ...FRAGILARIACEAE | | | | | | | | |
| ....SYNEDRA | 38# | 18 | -- | - | -- | - | -- | - |
| ...GOMPHONEMATACEAE | | | | | | | | |
| ....GOMPHONEMA | -- | - | 160# | 18 | 980# | 24 | 14 | 2 |
| ...NAVICULACEAE | | | | | | | | |
| ....GYROSIGMA | -- | - | -- | - | -- | - | -- | - |
| ....NAVICULA | 43# | 21 | 200# | 22 | 1800# | 44 | 270# | 31 |
| ....PINNULARIA | -- | - | -- | - | -- | - | -- | - |
| ...NITZSCHIACEAE | | | | | | | | |
| ....NITZSCHIA | 27 | 13 | 51 | 6 | 160 | 4 | 390# | 44 |
| CRYPTOPHYTA (CRYPTOMONADS) | | | | | | | | |
| .CRYPTOPHYCEAE | | | | | | | | |
| ..CRYPTOMONIDALES | | | | | | | | |
| ...CRYPTOMONADACEAE | | | | | | | | |
| ....CRYPTOMONAS | -- | - | -- | - | -- | - | 29 | 3 |
| CYANOPHYTA (BLUE-GREEN ALGAE) | | | | | | | | |
| .CYANOPHYCEAE | | | | | | | | |
| ..HORMOGONALES | | | | | | | | |
| ...OSCILLATORIACEAE | | | | | | | | |
| ....OSCILLATORIA | -- | - | 7 | 1 | -- | - | -- | - |
| ....SPIRULINA | -- | - | -- | - | -- | - | -- | - |
| EUGLENOPHYTA (EUGLENOIDS) | | | | | | | | |
| .EUGLENOPHYCEAE | | | | | | | | |
| ..EUGLENALES | | | | | | | | |
| ...EUGLENACEAE | | | | | | | | |
| ....EUGLENA | -- | - | 7 | 1 | -- | - | 86 | 10 |
| ....LEPOCINCLIS | -- | - | -- | - | -- | - | -- | - |
| ....TRACHELOMONAS | -- | - | -- | - | 160 | 4 | 57 | 6 |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

09426600 BILL WILLIAMS RIVER BELOW MINERAL WASH NEAR PLANET, AZ--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

PHYTOPLANKTON

| DATE | JUL 10,78 | AUG 7,78 | SEP 11,78 |
|---|---|---|---|
| TIME | 0950 | 1015 | 1005 |
| TOTAL CELLS/ML | 1800 | 550 | 870 |
| DIVERSITY: DIVISION | 0.8 | 1.3 | 1.2 |
| .CLASS | 0.8 | 1.3 | 1.2 |
| ..ORDER | 1.0 | 1.5 | 1.6 |
| ...FAMILY | 1.9 | 2.0 | 2.3 |
| ....GENUS | 2.1 | 2.5 | 2.9 |

| ORGANISM | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT |
|---|---|---|---|---|---|---|
| CHLOROPHYTA (GREEN ALGAE) | | | | | | |
| .CHLOROPHYCEAE | | | | | | |
| ..CHLOROCOCCALES | | | | | | |
| ...CHARACIACEAE | | | | | | |
| ....SCHROEDERIA | -- | - | -- | - | -- | - |
| ...OOCYSTACEAE | | | | | | |
| ....OOCYSTIS | -- | - | -- | - | -- | - |
| ...SCENEDESMACEAE | | | | | | |
| ....SCENEDESMUS | -- | - | 32 | 6 | -- | - |
| ..VOLVOCALES | | | | | | |
| ...CHLAMYDOMONADACEAE | | | | | | |
| ....CARTERIA | 22 | 1 | -- | - | -- | - |
| ....CHLAMYDOMONAS | -- | - | -- | - | -- | - |
| ...PHACOTACEAE | | | | | | |
| ....PHACOTUS | 67 | 4 | -- | - | -- | - |
| ..ZYGNEMATALES | | | | | | |
| ...DESMIDIACEAE | | | | | | |
| ....CLOSTERIUM | -- | - | -- | - | -- | - |
| CHRYSOPHYTA | | | | | | |
| .BACILLARIOPHYCEAE | | | | | | |
| ..CENTRALES | | | | | | |
| ...COSCINODISCACEAE | | | | | | |
| ....CYCLOTELLA | 44 | 2 | 16 | 3 | 87 | 10 |
| ....STEPHANODISCUS | -- | - | 8 | 1 | -- | - |
| ..PENNALES | | | | | | |
| ...ACHNANTHACEAE | | | | | | |
| ....ACHNANTHES | -- | - | -- | - | -- | - |
| ....COCCONEIS | -- | - | 8 | 1 | -- | - |
| ....RHOICOSPHENIA | 22 | 1 | -- | - | -- | - |
| ...CYMBELLACEAE | | | | | | |
| ....CYMBELLA | -- | - | -- | - | -- | - |
| ...DIATOMACEAE | | | | | | |
| ....DIATOMA | 22 | 1 | -- | - | -- | - |
| ...FRAGILARIACEAE | | | | | | |
| ....SYNEDRA | -- | - | -- | - | -- | - |
| ...GOMPHONEMATACEAE | | | | | | |
| ....GOMPHONEMA | -- | - | -- | - | 43 | 5 |
| ...NAVICULACEAE | | | | | | |
| ....GYROSIGMA | -- | - | 16 | 3 | 43 | 5 |
| ....NAVICULA | 980# | 53 | 81 | 15 | 130 | 15 |
| ....PINNULARIA | 22 | 1 | -- | - | -- | - |
| ...NITZSCHIACEAE | | | | | | |
| ....NITZSCHIA | 420# | 23 | 150# | 26 | 220# | 25 |
| CRYPTOPHYTA (CRYPTOMONADS) | | | | | | |
| .CRYPTOPHYCEAE | | | | | | |
| ..CRYPTOMONIDALES | | | | | | |
| ...CRYPTOMONODACEAE | | | | | | |
| ....CRYPTOMONAS | -- | - | -- | - | -- | - |
| CYANOPHYTA (BLUE-GREEN ALGAE) | | | | | | |
| .CYANOPHYCEAE | | | | | | |
| ..HORMOGONALES | | | | | | |
| ...OSCILLATORIACEAE | | | | | | |
| ....OSCILLATORIA | -- | - | -- | - | -- | - |
| ....SPIRULINA | -- | - | -- | - | 43 | 5 |
| EUGLENOPHYTA (EUGLENOIDS) | | | | | | |
| .EUGLENOPHYCEAE | | | | | | |
| ..EUGLENALES | | | | | | |
| ...EUGLENACEAE | | | | | | |
| ....EUGLENA | 160 | 8 | 190# | 34 | 130 | 15 |
| ....LEPOCINCLIS | -- | - | -- | - | 130 | 15 |
| ....TRACHELOMONAS | 89 | 5 | 57 | 10 | 43 | 5 |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

## 09427500 LAKE HAVASU NEAR PARKER DAM, AZ-CA

LOCATION.--Lat 34°18'58", long 114°09'23", in NW¼SW¼ sec.28, T.3 N., R.27 E., San Bernardino meridian, in California, San Bernardino County, Hydrologic Unit 15030101, at intake pumping plant for Colorado River aqueduct of Metropolitan Water District of Southern California, 1.8 mi (2.9 km) upstream from Parker Dam on Colorado River, and 149 mi (240 km), downstream from Hoover Dam.

DRAINAGE AREA.--182,700 $mi^2$ (473,200 $km^2$), approximately, including 3,959 $mi^2$ (10,254 $km^2$) in Great Divide basin in southern Wyoming, which is noncontributing (previously considered part of the Missouri River basin).

PERIOD OF RECORD.--July 1938 to current year. Published as "Parker Reservoir near Parker Dam" 1938.

REVISED RECORDS.--WRD Ariz. 1975: 1974 (elevation).

GAGE.--Water-stage recorder. Datum of gage is 400.54 ft (122.085 m) National Geodetic Vertical Datum of 1929. Gage readings have been reduced to elevations NGVD.

REMARKS.--Lake is formed by concrete-arch dam; dam was completed and storage began July 1, 1938. Usable capacity—based on April 1957 re-survey by Bureau of Reclamation between elevations 430.54 ft (131.229 m) and 450.54 ft (137.325 m)—619,400 acre-ft (764 $hm^3$) between elevations 400.54 ft (122.085 m), sill of regulating gates, and 450.54 ft (137.325 m), top of regulating gates. Prior to Oct. 1, 1956, different capacity table used. Dead storage, 28,600 acre-ft (35.3 $hm^3$) below elevation 400.54 ft (122.085 m), based on original survey. About 0.07 ft (0.021 m) fall indicated between gage and Parker Dam under normal operating conditions. Drawdown below elevation 440.54 ft (134.277 m) not legally permissible except by consent of the Metropolitan Water District of Southern California or in an emergency affecting the safety of the dam. Lake is used for flood control, power development, re-regulation of river for irrigation demand, and as a basin from which water is pumped by Metropolitan Water District of Southern California to Colorado River aqueduct. Figures given herein represent usable contents. For record of diversion to Colorado River aqueduct, see record for Colorado River aqueduct near Parker Dam elsewhere in this report.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 693,000 acre-ft (854 $hm^3$), by temporary use of flashboards, Apr. 18, 1943, June 4, 1953; maximum elevation, 450.77 ft (137.395 m) June 26, 1958; minimum contents, 71,400 acre-ft (88.0 $hm^3$) June 25, 1942, elevation, 412.09 ft (125.605 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 622,200 acre-ft (767 $hm^3$) May 27, elevation, 450.68 ft (137.367 m); minimum, 528,500 acre-ft (652 $hm^3$) Feb. 18, elevation, 445.75 ft (135.865 m).

CORRECTIONS.--Contents table, water year 1977. In the previously published table the contents in acre-feet were rounded improperly. A correct table is shown below.

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
INSTANTANEOUS OBSERVATIONS AT 2400

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 585300 | 571800 | 541400 | 577500 | 544000 | 557700 | 571300 | 599200 | 613400 | 599000 | 584200 | 573700 |
| 2 | 579600 | 570100 | 544500 | 577900 | 544500 | 559400 | 574500 | 595400 | 615400 | 597200 | 585900 | 581900 |
| 3 | 573200 | 569700 | 545200 | 581000 | 546700 | 561100 | 577700 | 594800 | 613400 | 596000 | 589500 | 581900 |
| 4 | 562000 | 569600 | 550400 | 581000 | 548100 | 562200 | 571800 | 599000 | 613200 | 592800 | 591200 | 574300 |
| 5 | 559200 | 566700 | 552800 | 581300 | 549000 | 557900 | 571800 | 603800 | 612400 | 596400 | 588000 | 569400 |
| 6 | 559800 | 562400 | 547200 | 582300 | 547700 | 555400 | 572000 | 608000 | 611800 | 604800 | 585500 | 576800 |
| 7 | 558100 | 559200 | 548100 | 583400 | 545100 | 551300 | 577500 | 611800 | 613000 | 611600 | 583400 | 582300 |
| 8 | 556500 | 554300 | 549900 | 584200 | 541400 | 548500 | 579200 | 613000 | 614200 | 609200 | 578500 | 582300 |
| 9 | 555600 | 555000 | 552100 | 584600 | 545400 | 546700 | 581900 | 612200 | 615800 | 611000 | 579800 | 579600 |
| 10 | 554600 | 557300 | 552400 | 584900 | 548500 | 546800 | 581300 | 614400 | 615800 | 610400 | 581900 | 573500 |
| 11 | 555400 | 557700 | 551700 | 583400 | 547200 | 546800 | 576200 | 617600 | 617400 | 604400 | 580200 | 574300 |
| 12 | 559400 | 560900 | 550400 | 581500 | 546800 | 548300 | 578300 | 620400 | 617400 | 606000 | 577000 | 578100 |
| 13 | 561100 | 565600 | 548100 | 579400 | 547200 | 551500 | 581500 | 621600 | 614600 | 607200 | 580400 | 578100 |
| 14 | 561800 | 569900 | 549900 | 575400 | 542700 | 546300 | 586600 | 619400 | 615600 | 607800 | 581500 | 578100 |
| 15 | 563700 | 572400 | 555400 | 568400 | 544900 | 547400 | 588600 | 617000 | 617200 | 603600 | 584800 | 577900 |
| 16 | 562900 | 570900 | 560700 | 561100 | 546700 | 550100 | 588400 | 617200 | 620000 | 602800 | 604800 | 572600 |
| 17 | 562400 | 572600 | 557700 | 555800 | 550400 | 554600 | 587400 | 614800 | 615600 | 600800 | 613600 | 566300 |
| 18 | 561800 | 573900 | 556000 | 552400 | 550300 | 557700 | 582700 | 611400 | 612600 | 594000 | 614200 | 561500 |
| 19 | 561500 | 573900 | 554300 | 550600 | 549700 | 561800 | 582100 | 607400 | 610600 | 596200 | 613000 | 559000 |
| 20 | 562700 | 573400 | 551700 | 549400 | 550800 | 564400 | 584000 | 605800 | 604200 | 600400 | 607600 | 562000 |
| 21 | 564400 | 571800 | 553300 | 548800 | 545600 | 559800 | 589500 | 608600 | 605200 | 599800 | 603600 | 568000 |
| 22 | 570500 | 570100 | 555800 | 552200 | 546100 | 561100 | 590100 | 609400 | 609400 | 595200 | 595000 | 573900 |
| 23 | 573900 | 569000 | 560000 | 551500 | 545200 | 561300 | 590600 | 607400 | 611200 | 595000 | 598400 | 574500 |
| 24 | 573900 | 567100 | 560200 | 548800 | 546100 | 565400 | 590800 | 613800 | 608000 | 593800 | 598800 | 577300 |
| 25 | 573500 | 565400 | 559600 | 549900 | 547200 | 566900 | 586600 | 616800 | 607400 | 588700 | 597200 | 569000 |
| 26 | 571600 | 566100 | 559200 | 549500 | 551000 | 572400 | 586500 | 617400 | 606600 | 590800 | 587000 | 561100 |
| 27 | 572000 | 559600 | 556000 | 552100 | 554600 | 572800 | 591000 | 612400 | 600000 | 596000 | 579600 | 560300 |
| 28 | 573900 | 553100 | 556900 | 548100 | 553500 | 572000 | 599200 | 611600 | 601200 | 600000 | 570500 | 565200 |
| 29 | 575400 | 547600 | 560500 | 548100 | --- | 572200 | 599000 | 614600 | 605400 | 596800 | 562700 | 567100 |
| 30 | 575400 | 544500 | 564800 | 549000 | --- | 570700 | 598600 | 612400 | 604800 | 592200 | 565400 | 568800 |
| 31 | 575100 | --- | 570500 | 546700 | --- | 571600 | --- | 612800 | --- | 588700 | 570300 | --- |
| MAX | 585300 | 573900 | 570500 | 584900 | 554600 | 572800 | 599200 | 621600 | 620000 | 611600 | 614200 | 582300 |
| MIN | 554600 | 544500 | 541400 | 546700 | 541400 | 546300 | 571300 | 594800 | 600000 | 588700 | 562700 | 559000 |
| (‡) | -9300 | -30600 | +26000 | -23800 | +6800 | +18100 | +27000 | +14200 | -8000 | -16100 | -18400 | -1500 |

CAL YR 1976 MAX 620800 MIN 529400 ‡ +24900
WTR YR 1977 MAX 621600 MIN 541400 ‡ -15600

‡ Change in contents, in acre-feet.

09427500 LAKE HAVASU NEAR PARKER DAM, AZ-CA--Continued

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
INSTANTANEOUS OBSERVATIONS AT 2400

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 569700 | 563500 | 554600 | 550300 | 556900 | 563800 | 572800 | 597800 | 614800 | 613800 | 589500 | 575400 |
| 2 | 568600 | 565900 | 553000 | 550600 | 556200 | 562500 | 573000 | 600800 | 616600 | 613600 | 591200 | 574300 |
| 3 | 566700 | 566800 | 551700 | 553100 | 553300 | 557100 | 567600 | 604600 | 617600 | 609600 | 593800 | 573900 |
| 4 | 565900 | 569900 | 550300 | 555600 | 551000 | 552800 | 569700 | 608000 | 616800 | 612000 | 592800 | 574700 |
| 5 | 566700 | 569700 | 547700 | 556900 | 551000 | 553300 | 573000 | 609200 | 614200 | 614000 | 586800 | 574900 |
| 6 | 574300 | 566700 | 549500 | 556900 | 545600 | 548600 | 578300 | 609400 | 616200 | 615200 | 583400 | 573000 |
| 7 | 573900 | 563100 | 551500 | 557100 | 543400 | 542300 | 575100 | 609400 | 618200 | 613000 | 560800 | 574500 |
| 8 | 570500 | 562700 | 553300 | 556400 | 541800 | 537100 | 575600 | 608200 | 618400 | 610600 | 579200 | 573000 |
| 9 | 570900 | 561300 | 553300 | 556700 | 539600 | 539300 | 574500 | 612800 | 613000 | 610200 | 577900 | 572400 |
| 10 | 570900 | 562700 | 553100 | 559600 | 540900 | 544000 | 568000 | 616400 | 610200 | 604800 | 573400 | 572800 |
| 11 | 570900 | 559800 | 553500 | 560200 | 540900 | 545600 | 569600 | 616000 | 611600 | 606000 | 570500 | 570100 |
| 12 | 572400 | 559600 | 550800 | 556600 | 535500 | 547600 | 573900 | 614600 | 608600 | 604400 | 567600 | 570700 |
| 13 | 570500 | 560000 | 548100 | 555600 | 535000 | 544300 | 579200 | 614200 | 609800 | 604400 | 567300 | 569200 |
| 14 | 564400 | 558400 | 547000 | 553900 | 535100 | 544500 | 579400 | 611200 | 608400 | 599800 | 563800 | 572000 |
| 15 | 560900 | 560300 | 549400 | 556000 | 531500 | 546300 | 579800 | 608400 | 610600 | 600000 | 563300 | 571300 |
| 16 | 561100 | 562900 | 548300 | 554400 | 533700 | 546100 | 579400 | 614000 | 612400 | 598400 | 565200 | 572000 |
| 17 | 560900 | 562500 | 547900 | 553300 | 530100 | 543800 | 572200 | 611000 | 615600 | 592400 | 567600 | 572600 |
| 18 | 560000 | 557500 | 547700 | 551900 | 529200 | 544900 | 573400 | 607800 | 613400 | 593000 | 567800 | 573200 |
| 19 | 559600 | 553000 | 544500 | 551700 | 534100 | 545800 | 577700 | 602800 | 609000 | 595200 | 565800 | 572600 |
| 20 | 562500 | 549900 | 543800 | 551700 | 533700 | 540200 | 563600 | 601800 | 610600 | 596400 | 564400 | 573500 |
| 21 | 560900 | 547600 | 546100 | 551700 | 539100 | 541300 | 567400 | 602400 | 614600 | 593400 | 559600 | 573200 |
| 22 | 562700 | 546300 | 551700 | 551500 | 543100 | 547200 | 567200 | 600000 | 618000 | 590800 | 560500 | 570900 |
| 23 | 565400 | 549200 | 551700 | 552100 | 546300 | 554300 | 587000 | 606200 | 613600 | 591400 | 564600 | 566700 |
| 24 | 563800 | 554300 | 555000 | 546300 | 548300 | 563700 | 581000 | 610800 | 611600 | 591800 | 569400 | 568200 |
| 25 | 564800 | 556900 | 555200 | 546800 | 547700 | 569200 | 583200 | 616000 | 610400 | 593800 | 570900 | 562500 |
| 26 | 565200 | 558400 | 556400 | 544100 | 551200 | 570700 | 587000 | 618800 | 606400 | 599000 | 572400 | 565200 |
| 27 | 565900 | 559800 | 558600 | 543400 | 549900 | 564600 | 591800 | 616400 | 609200 | 600800 | 573400 | 567500 |
| 28 | 566900 | 559200 | 556700 | 544100 | 558100 | 565600 | 594600 | 617000 | 610400 | 599000 | 571800 | 570700 |
| 29 | 566100 | 558800 | 554300 | 545800 | --- | 566900 | 595200 | 614200 | 612800 | 597400 | 572800 | 572200 |
| 30 | 566300 | 556700 | 551300 | 549500 | --- | 569400 | 597000 | 610600 | 611400 | 595400 | 572800 | 571600 |
| 31 | 563300 | --- | 549700 | 555800 | --- | 570500 | --- | 611200 | --- | 590400 | 574900 | --- |
| MAX | 574300 | 569900 | 558800 | 560200 | 558100 | 570700 | 597000 | 618800 | 618400 | 615200 | 593800 | 575400 |
| MIN | 559600 | 546300 | 543600 | 543400 | 529200 | 537100 | 567600 | 597800 | 606400 | 590400 | 559600 | 562500 |
| (‡) | -5500 | -6600 | -7000 | +6100 | +2300 | +12400 | +26500 | +14200 | +200 | -21000 | -15500 | -3300 |

CAL YR 1977 MAX 621600 MIN 541400 ‡ -20800
WTR YR 1978 MAX 618800 MIN 529200 ‡ +2800

‡ Change in contents, in acre-feet.

09427500 LAKE HAVASU NEAR PARKER DAM, AZ-CA--Continued

ELEVATION, IN FEET NGVD, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
INSTANTANEOUS OBSERVATIONS AT 2400

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 447.99 | 447.67 | 447.20 | 446.96 | 447.32 | 447.69 | 448.16 | 449.46 | 450.31 | 450.26 | 449.04 | 448.30 |
| 2 | 447.94 | 447.80 | 447.11 | 446.98 | 447.28 | 447.62 | 448.17 | 449.61 | 450.40 | 450.25 | 449.13 | 448.24 |
| 3 | 447.84 | 447.95 | 447.04 | 447.12 | 447.13 | 447.33 | 447.89 | 449.80 | 450.45 | 450.05 | 449.26 | 448.22 |
| 4 | 447.80 | 448.01 | 446.96 | 447.25 | 447.00 | 447.10 | 448.00 | 449.97 | 450.41 | 450.17 | 449.21 | 448.26 |
| 5 | 447.84 | 448.00 | 446.82 | 447.32 | 447.00 | 447.13 | 448.17 | 450.03 | 450.28 | 450.27 | 448.90 | 448.27 |
| 6 | 448.24 | 447.84 | 446.92 | 447.32 | 446.71 | 446.87 | 448.45 | 450.04 | 450.38 | 450.33 | 448.72 | 448.17 |
| 7 | 448.22 | 447.65 | 447.03 | 447.33 | 446.58 | 446.52 | 448.28 | 450.04 | 450.48 | 450.22 | 448.58 | 448.25 |
| 8 | 448.04 | 447.63 | 447.13 | 447.29 | 446.49 | 446.23 | 448.31 | 449.98 | 450.49 | 450.10 | 448.50 | 448.17 |
| 9 | 448.06 | 447.55 | 447.13 | 447.31 | 446.38 | 446.35 | 448.25 | 450.21 | 450.22 | 450.08 | 448.43 | 448.14 |
| 10 | 448.06 | 447.63 | 447.12 | 447.46 | 446.44 | 446.61 | 447.91 | 450.39 | 450.08 | 449.81 | 448.19 | 448.16 |
| 11 | 448.06 | 447.47 | 447.14 | 447.49 | 446.44 | 446.70 | 447.99 | 450.37 | 450.15 | 449.87 | 448.04 | 448.02 |
| 12 | 448.14 | 447.46 | 446.99 | 447.41 | 446.14 | 446.81 | 448.22 | 450.30 | 450.00 | 449.79 | 447.90 | 448.05 |
| 13 | 448.04 | 447.48 | 446.84 | 447.25 | 446.11 | 446.63 | 448.50 | 450.28 | 450.06 | 449.79 | 447.87 | 447.97 |
| 14 | 447.72 | 447.40 | 446.78 | 447.16 | 446.12 | 446.64 | 448.51 | 450.13 | 449.99 | 449.56 | 447.69 | 448.12 |
| 15 | 447.53 | 447.50 | 446.91 | 447.27 | 445.92 | 446.74 | 448.53 | 449.99 | 450.10 | 449.57 | 447.66 | 448.08 |
| 16 | 447.54 | 447.64 | 446.85 | 447.19 | 446.04 | 446.84 | 448.51 | 450.27 | 450.19 | 449.49 | 447.76 | 448.12 |
| 17 | 447.53 | 447.62 | 446.83 | 447.13 | 445.84 | 446.60 | 448.13 | 450.12 | 450.35 | 449.19 | 447.89 | 448.15 |
| 18 | 447.48 | 447.35 | 446.82 | 447.05 | 445.79 | 446.66 | 448.19 | 449.96 | 450.24 | 449.22 | 447.90 | 448.18 |
| 19 | 447.47 | 447.11 | 446.64 | 447.04 | 446.06 | 446.71 | 448.42 | 449.71 | 450.02 | 449.33 | 447.79 | 448.15 |
| 20 | 447.62 | 446.94 | 446.60 | 447.04 | 446.04 | 446.40 | 448.73 | 449.66 | 450.10 | 449.39 | 447.72 | 448.20 |
| 21 | 447.53 | 446.81 | 446.73 | 447.04 | 446.34 | 446.46 | 448.93 | 449.69 | 450.30 | 449.24 | 447.46 | 448.18 |
| 22 | 447.63 | 446.74 | 447.04 | 447.03 | 446.56 | 446.79 | 448.92 | 449.57 | 450.47 | 449.11 | 447.51 | 448.06 |
| 23 | 447.77 | 446.90 | 447.04 | 447.06 | 446.74 | 447.18 | 448.91 | 449.88 | 450.25 | 449.14 | 447.73 | 447.84 |
| 24 | 447.69 | 447.18 | 447.22 | 446.74 | 446.85 | 447.68 | 448.59 | 450.11 | 450.16 | 449.16 | 447.98 | 447.92 |
| 25 | 447.74 | 447.32 | 447.23 | 446.77 | 446.82 | 447.97 | 448.71 | 450.37 | 450.09 | 449.26 | 448.06 | 447.62 |
| 26 | 447.76 | 447.40 | 447.29 | 446.62 | 447.01 | 448.05 | 448.91 | 450.51 | 449.89 | 449.52 | 448.14 | 447.76 |
| 27 | 447.80 | 447.47 | 447.42 | 446.58 | 446.94 | 447.73 | 449.16 | 450.39 | 450.03 | 449.61 | 448.19 | 447.88 |
| 28 | 447.85 | 447.44 | 447.31 | 446.62 | 447.38 | 447.78 | 449.31 | 450.42 | 450.09 | 449.52 | 448.11 | 448.05 |
| 29 | 447.81 | 447.42 | 447.18 | 446.71 | --- | 447.85 | 449.33 | 450.28 | 450.21 | 449.44 | 448.16 | 448.13 |
| 30 | 447.82 | 447.31 | 447.02 | 446.92 | --- | 447.98 | 449.42 | 450.10 | 450.14 | 449.34 | 448.16 | 448.10 |
| 31 | 447.66 | --- | 446.93 | 447.26 | --- | 448.04 | --- | 450.13 | --- | 449.09 | 448.27 | --- |
| MEAN | 447.81 | 447.46 | 447.01 | 447.09 | 446.55 | 447.09 | 448.52 | 450.06 | 450.21 | 449.65 | 448.19 | 448.09 |
| MAX | 448.24 | 448.01 | 447.42 | 447.49 | 447.38 | 448.05 | 449.42 | 450.51 | 450.49 | 450.33 | 449.26 | 448.30 |
| MIN | 447.47 | 446.74 | 446.60 | 446.58 | 445.79 | 446.23 | 447.89 | 449.46 | 449.89 | 449.09 | 447.46 | 447.62 |

CAL YR 1977 MEAN 448.33 MAX 450.65 MIN 446.45
WTR YR 1978 MEAN 448.15 MAX 450.51 MIN 445.79

## 09427520 COLORADO RIVER BELOW PARKER DAM, AZ-CA

LOCATION.--Lat 34°17'44", long 114°08'22", in NW¼NW¼ sec.3, T.2 N., R.27 E., San Bernardino meridian, in California, San Bernardino County, Hydrologic Unit 15030104, on north end of powerplant at Parker Dam, 13 mi (21 km) northeast of Parker, Ariz., and 14 mi (23 km) upstream from Headgate Rock Dam.

DRAINAGE AREA.--182,700 $mi^2$ (473,200 $km^2$), approximately, including 3,959 $mi^2$ (10,254 $km^2$) in Great Divide basin in southern Wyoming, which is noncontributing (previously considered part of the Missouri River basin).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February to September 1934 (gage heights and fragmentary discharge records), October 1934 to current year. Prior to October 1937, published as "near Parker, Ariz."

REVISED RECORDS.--WSP 1313: 1941(M).

GAGE.--Water-stage recorder. Datum of gage is 300.54 ft (91.605 m) National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1967, at site 3.8 mi (6.1 km) downstream at datum 346.23 ft (105.531 m) N.G.V.D.

REMARKS.--Records excellent. Flow regulated by Lake Mead since Feb. 1, 1935, by Lake Mohave since Jan. 17, 1950, and by Lake Havasu since July 1, 1938. Many diversions above station. For record of diversion to Colorado River aqueduct and return flows, see record for Colorado River aqueduct near Parker Dam, elsewhere in this report.

AVERAGE DISCHARGE.--44 years, 11,950 $ft^3/s$ (338.4 $m^3/s$), 8,658,000 acre-ft/yr (10,700 $hm^3/yr$), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 42,400 $ft^3/s$ (1,200 $m^3/s$) Feb. 8, 1937; no flow at Parker Dam for parts of several days in 1942 when gates in dam were closed; minimum daily discharge, 920 $ft^3/s$ (26.1 $m^3/s$) Jan. 11, 1978.
An unregulated discharge of probably less than 1,350 $ft^3/s$ (38.2 $m^3/s$) occurred Aug. 18, 1934 (lowest unregulated discharge since 1917 and probably since a much earlier date).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 19,300 $ft^3/s$ (547 $m^3/s$) Mar. 30; maximum gage height, 72.01 ft (21.949 m) June 9, 10; minimum daily, 920 $ft^3/s$ (26.1 $m^3/s$) Jan. 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 6320 | 5300 | 5650 | 1930 | 1890 | 3970 | 15300 | 10800 | 9900 | 14400 | 14200 | 10100 |
| 2 | 6650 | 4900 | 6140 | 1940 | 1850 | 4030 | 16100 | 10900 | 11600 | 15300 | 14300 | 10600 |
| 3 | 6590 | 3950 | 6190 | 1950 | 2780 | 4010 | 15500 | 9700 | 12000 | 15000 | 13700 | 10600 |
| 4 | 6450 | 4760 | 6490 | 1990 | 3450 | 3990 | 14700 | 9020 | 11900 | 14500 | 14300 | 9280 |
| 5 | 6360 | 5100 | 5770 | 1990 | 2990 | 3990 | 13300 | 11000 | 12300 | 13300 | 15400 | 9240 |
| 6 | 2900 | 6020 | 5800 | 1990 | 5190 | 6590 | 12500 | 11200 | 11400 | 13100 | 15600 | 10200 |
| 7 | 2920 | 5900 | 5200 | 1950 | 4170 | 7480 | 14400 | 11500 | 10600 | 14500 | 15100 | 9660 |
| 8 | 4760 | 5860 | 5020 | 1950 | 4430 | 8800 | 14500 | 11000 | 9660 | 15500 | 15000 | 11200 |
| 9 | 4700 | 4750 | 5400 | 1610 | 4230 | 9090 | 15300 | 9990 | 11600 | 15300 | 14600 | 11700 |
| 10 | 5230 | 4350 | 5950 | 1200 | 5280 | 11000 | 14700 | 9240 | 12500 | 15300 | 13600 | 11300 |
| 11 | 4920 | 5800 | 5850 | 920 | 6480 | 11900 | 14200 | 9260 | 12900 | 15300 | 14600 | 11200 |
| 12 | 4830 | 5910 | 6180 | 1200 | 8570 | 11800 | 13200 | 10200 | 12700 | 14600 | 14600 | 9850 |
| 13 | 4340 | 5640 | 6340 | 1890 | 5840 | 10700 | 12700 | 11300 | 12500 | 13200 | 13300 | 9840 |
| 14 | 5700 | 5240 | 6170 | 1890 | 7570 | 12000 | 14800 | 12300 | 12600 | 14900 | 13400 | 8510 |
| 15 | 6500 | 4350 | 5100 | 1890 | 7730 | 12500 | 15300 | 12300 | 11600 | 14700 | 13400 | 9670 |
| 16 | 6500 | 4050 | 6500 | 1890 | 6440 | 12400 | 16100 | 11500 | 13300 | 15500 | 12400 | 9650 |
| 17 | 6690 | 3890 | 6710 | 1890 | 9750 | 14500 | 15500 | 11800 | 13000 | 15300 | 11500 | 9440 |
| 18 | 6760 | 5510 | 6790 | 1890 | 10000 | 14600 | 15700 | 11000 | 14300 | 15300 | 11900 | 9480 |
| 19 | 6280 | 6380 | 6200 | 1890 | 9990 | 14500 | 15100 | 12400 | 14800 | 15200 | 12600 | 9410 |
| 20 | 4850 | 5940 | 5240 | 1890 | 10500 | 14600 | 13800 | 12800 | 14100 | 14200 | 12800 | 8380 |
| 21 | 6550 | 5210 | 3600 | 1890 | 10700 | 14800 | 15000 | 12500 | 12800 | 16000 | 12500 | 7420 |
| 22 | 6180 | 5320 | 1920 | 1890 | 10400 | 13600 | 15600 | 12100 | 11600 | 15700 | 11700 | 8490 |
| 23 | 6120 | 3880 | 4960 | 1890 | 10400 | 13500 | 15500 | 10400 | 14000 | 16400 | 11100 | 10300 |
| 24 | 5940 | 2860 | 5830 | 4930 | 12100 | 13300 | 15100 | 9670 | 15200 | 14600 | 10600 | 10200 |
| 25 | 5670 | 3430 | 7000 | 1890 | 12300 | 13400 | 13200 | 9050 | 15100 | 14200 | 12000 | 10100 |
| 26 | 5440 | 3220 | 3800 | 3510 | 10600 | 13900 | 11900 | 10000 | 14800 | 13500 | 11700 | 9940 |
| 27 | 5080 | 3450 | 1900 | 3950 | 9530 | 14400 | 11500 | 11600 | 14300 | 12400 | 11800 | 9160 |
| 28 | 5790 | 3910 | 1930 | 4390 | 5370 | 14900 | 12800 | 11600 | 14000 | 14500 | 11400 | 7460 |
| 29 | 6120 | 4580 | 1980 | 4010 | --- | 15100 | 12700 | 12000 | 13000 | 15100 | 10500 | 8070 |
| 30 | 6170 | 5770 | 1980 | 2980 | --- | 14200 | 12100 | 12300 | 14500 | 15100 | 10300 | 8410 |
| 31 | 6050 | --- | 1960 | 1850 | --- | 15400 | --- | 11800 | --- | 14800 | 9120 | --- |
| TOTAL | 175360 | 145230 | 155550 | 68920 | 200530 | 348950 | 428100 | 342230 | 384560 | 456700 | 399020 | 288860 |
| MEAN | 5657 | 4841 | 5018 | 2223 | 7162 | 11260 | 14270 | 11040 | 12820 | 14730 | 12870 | 9629 |
| MAX | 6760 | 6380 | 7000 | 4930 | 12300 | 15400 | 16100 | 12800 | 15200 | 16400 | 15600 | 11700 |
| MIN | 2900 | 2860 | 1900 | 920 | 1850 | 3970 | 11500 | 9020 | 9660 | 12400 | 9120 | 7420 |
| AC-FT | 347800 | 288100 | 308500 | 136700 | 397800 | 692100 | 849100 | 678800 | 762800 | 905900 | 791500 | 573000 |

CAL YR 1977 TOTAL 3383630 MEAN 9270 MAX 17200 MIN 1890 AC-FT 6711000
WTR YR 1978 TOTAL 3394010 MEAN 9299 MAX 16400 MIN 920 AC-FT 6732000

09427520 COLORADO RIVER BELOW PARKER DAM, AZ-CA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1963 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: February 1954 to August 1970.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | TUR-BID-ITY (JTU) | OXYGEN, DIS-SOLVED (MG/L) | COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | |
| 03... | 0730 | -- | 1070 | -- | 23.5 | -- | -- | -- | -- | -- |
| 06... | 1135 | 4610 | 1080 | 7.7 | 22.5 | 2 | 5.6 | 1 | 330 | 200 |
| 11... | 0730 | -- | 1070 | -- | 23.0 | -- | -- | -- | -- | -- |
| 17... | 0730 | -- | 1070 | -- | 23.5 | -- | -- | -- | -- | -- |
| 25... | 0730 | -- | 1070 | -- | 22.0 | -- | -- | -- | -- | -- |
| 31... | 0830 | -- | 1080 | -- | 20.0 | -- | -- | -- | -- | -- |
| NOV | | | | | | | | | | |
| 07... | 1215 | 4700 | 1070 | 7.8 | 20.5 | 3 | 6.7 | 1 | 330 | 200 |
| 07... | 1325 | -- | 1070 | -- | 19.5 | -- | -- | -- | -- | -- |
| 14... | 1000 | -- | 1070 | -- | 18.5 | -- | -- | -- | -- | -- |
| 21... | 1000 | -- | 1080 | -- | 17.0 | -- | -- | -- | -- | -- |
| 28... | 0730 | -- | 1080 | -- | 16.0 | -- | -- | -- | -- | -- |
| DEC | | | | | | | | | | |
| 05... | 0800 | -- | 1090 | -- | -- | -- | -- | -- | -- | -- |
| 05... | 1230 | 4670 | 1080 | 7.8 | 15.5 | 2 | 9.2 | 1 | 330 | 200 |
| 12... | 0730 | -- | 1090 | -- | 15.0 | -- | -- | -- | -- | -- |
| 19... | 0730 | -- | 1090 | -- | 14.5 | -- | -- | -- | -- | -- |
| 27... | 1230 | -- | 1110 | -- | 13.5 | -- | -- | -- | -- | -- |
| JAN | | | | | | | | | | |
| 03... | 0730 | -- | 1090 | -- | 13.5 | -- | -- | -- | -- | -- |
| 09... | 0730 | -- | 1090 | -- | 13.5 | -- | -- | -- | -- | -- |
| 09... | 1230 | 1290 | 1100 | 7.1 | 13.0 | 3 | 10.5 | 38 | 350 | 230 |
| 16... | 0730 | -- | 1090 | -- | 12.0 | -- | -- | -- | -- | -- |
| 23... | 0800 | -- | 1100 | -- | 12.0 | -- | -- | -- | -- | -- |
| 30... | 0730 | -- | 1090 | -- | 12.0 | -- | -- | -- | -- | -- |
| FEB | | | | | | | | | | |
| 06... | 0830 | -- | 1090 | -- | 13.0 | -- | -- | -- | -- | -- |
| 06... | 1240 | 1950 | 1090 | 7.9 | 14.0 | 2 | 10.2 | 1 | 340 | 210 |
| 13... | 0730 | -- | 1090 | -- | 13.0 | -- | -- | -- | -- | -- |
| 21... | 0800 | -- | 1090 | -- | 13.0 | -- | -- | -- | -- | -- |
| 27... | 0730 | -- | 1090 | -- | 13.5 | -- | -- | -- | -- | -- |
| MAR | | | | | | | | | | |
| 06... | 0730 | -- | 1080 | -- | 13.5 | -- | -- | -- | -- | -- |
| 06... | 1210 | 4900 | 1080 | 7.8 | 15.5 | 10 | 8.0 | 42 | 340 | 210 |
| 13... | 0800 | -- | 1080 | -- | 14.5 | -- | -- | -- | -- | -- |
| 20... | 0800 | -- | 1070 | -- | 16.5 | -- | -- | -- | -- | -- |
| 27... | 0800 | -- | 1080 | -- | 18.0 | -- | -- | -- | -- | -- |
| APR | | | | | | | | | | |
| 03... | 0800 | -- | 1080 | -- | 18.0 | -- | -- | -- | -- | -- |
| 10... | 0935 | -- | 1070 | -- | 18.0 | -- | -- | -- | -- | -- |
| 10... | 1245 | 18400 | 1080 | 8.3 | 18.5 | 3 | 9.8 | 1 | 310 | 180 |
| 17... | 0730 | -- | 1080 | -- | 18.5 | -- | -- | -- | -- | -- |
| 24... | 0800 | -- | 1080 | -- | 19.0 | -- | -- | -- | -- | -- |
| MAY | | | | | | | | | | |
| 01... | 0730 | -- | 1080 | -- | 19.0 | -- | -- | -- | -- | -- |
| 08... | 0800 | -- | 1080 | -- | 20.0 | -- | -- | -- | -- | -- |
| 08... | 1255 | 14300 | 1080 | 8.0 | 20.0 | 2 | 7.8 | 1 | 330 | 210 |
| 15... | 0800 | -- | 1080 | -- | -- | -- | -- | -- | -- | -- |
| 22... | 0800 | -- | 1090 | -- | 21.0 | -- | -- | -- | -- | -- |
| 30... | 0800 | -- | 1090 | -- | 22.0 | -- | -- | -- | -- | -- |
| JUN | | | | | | | | | | |
| 05... | 0800 | -- | 1090 | -- | 22.0 | -- | -- | -- | -- | -- |
| 12... | 0800 | -- | 1080 | -- | 23.0 | -- | -- | -- | -- | -- |
| 12... | 1310 | 19300 | 1090 | 7.8 | 23.0 | 2 | 7.0 | 1 | 330 | 200 |
| 19... | 0800 | -- | 1080 | -- | 24.5 | -- | -- | -- | -- | -- |
| 26... | 0800 | -- | 1080 | -- | 23.5 | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | | |
| 03... | 1200 | -- | 1080 | -- | 22.0 | -- | -- | -- | -- | -- |
| 10... | 0800 | -- | 1080 | -- | 24.0 | -- | -- | -- | -- | -- |
| 10... | 1215 | 18000 | 1080 | 7.9 | 23.5 | 2 | 7.2 | 1 | 320 | 200 |
| 17... | 0945 | -- | 1080 | -- | 25.0 | -- | -- | -- | -- | -- |
| 24... | 0745 | -- | 1080 | -- | 24.5 | -- | -- | -- | -- | -- |
| 31... | 0800 | -- | 1080 | -- | 25.0 | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | | |
| 07... | 0730 | -- | 1080 | -- | 24.5 | -- | -- | -- | -- | -- |
| 07... | 1245 | 18200 | 1070 | 8.1 | 25.5 | 2 | 6.2 | 2 | 310 | 190 |
| 14... | 0800 | -- | 1080 | -- | 25.0 | -- | -- | -- | -- | -- |
| 21... | 0745 | -- | 1080 | -- | 25.5 | -- | -- | -- | -- | -- |
| 28... | 0800 | -- | 1080 | -- | 25.0 | -- | -- | -- | -- | -- |
| SEP | | | | | | | | | | |
| 05... | 0730 | -- | 1080 | -- | 24.0 | -- | -- | -- | -- | -- |
| 11... | 0800 | -- | 1080 | -- | 24.0 | -- | -- | -- | -- | -- |
| 11... | 1145 | 13600 | 1080 | 7.8 | 25.0 | 2 | 6.1 | 2 | 330 | 200 |
| 18... | 0730 | -- | 1080 | -- | 24.0 | -- | -- | -- | -- | -- |
| 25... | 0740 | -- | 1090 | -- | 22.0 | -- | -- | -- | -- | -- |

09427520 COLORADO RIVER BELOW PARKER DAM, AZ-CA--Continued

INSTRUMENTATION.--Water temperature recorder from February 1954 to August 1970.

REMARKS.--Prior to October 1968, published as 09428000.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | CALCIUM DIS- SOLVED (MG/L AS CA) | MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) | SODIUM, DIS- SOLVED (MG/L AS NA) | SODIUM AD- SORP- TION RATIO | POTAS- SIUM, DIS- SOLVED (MG/L AS K) | BICAR- BONATE (MG/L AS HCO3) | CAR- BONATE (MG/L AS CO3) | SULFATE DIS- SOLVED (MG/L AS SO4) | CHLO- RIDE, DIS- SOLVED (MG/L AS CL) | FLUO- RIDE, DIS- SOLVED (MG/L AS F) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | |
| 03... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 06... | 78 | 32 | 100 | 2.4 | 4.8 | 150 | 0 | 310 | 88 | .3 |
| 11... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 17... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 25... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 31... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | | | | | |
| 07... | 79 | 31 | 95 | 2.3 | 5.1 | 150 | 0 | 290 | 89 | .4 |
| 07... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 21... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 28... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| DEC | | | | | | | | | | |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 05... | 81 | 32 | 110 | 2.6 | 5.1 | 160 | 0 | 310 | 91 | .2 |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 27... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JAN | | | | | | | | | | |
| 03... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 09... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 09... | 86 | 32 | 100 | 2.3 | 5.1 | 140 | 0 | 310 | 92 | .4 |
| 16... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 23... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 30... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | | | | | |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 06... | 82 | 34 | 100 | 2.3 | 5.0 | 160 | 0 | 290 | 92 | .4 |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 21... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 27... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MAR | | | | | | | | | | |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 06... | 86 | 30 | 100 | 2.4 | 4.8 | 160 | 0 | 270 | 90 | .5 |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 20... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 27... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| APR | | | | | | | | | | |
| 03... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 10... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 10... | 74 | 30 | 110 | 2.7 | 4.8 | 160 | 0 | 290 | 90 | .4 |
| 17... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 24... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MAY | | | | | | | | | | |
| 01... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 08... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 08... | 86 | 29 | 99 | 2.4 | 5.5 | 150 | 0 | 290 | 92 | .3 |
| 15... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 22... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 30... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUN | | | | | | | | | | |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 12... | 81 | 31 | 100 | 2.4 | 5.5 | 160 | 0 | 280 | 87 | .4 |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 26... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | | |
| 03... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 10... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 10... | 80 | 30 | 100 | 2.4 | 4.8 | 150 | 0 | 290 | 92 | .3 |
| 17... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 24... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 31... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | | |
| 07... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 07... | 76 | 29 | 94 | 2.3 | 5.0 | 150 | 0 | 280 | 90 | .3 |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 21... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 28... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| SEP | | | | | | | | | | |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 11... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 11... | 83 | 29 | 100 | 2.4 | 4.9 | 150 | 0 | 290 | 95 | .3 |
| 18... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 25... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

09427520 COLORADO RIVER BELOW PARKER DAM, AZ-CA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER AC-FT) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) | NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO-GEN, TOTAL (MG/L AS N) | PHOS-PHORUS, TOTAL (MG/L AS P) | PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | |
| 03... | -- | 676 | -- | .92 | -- | -- | -- | -- | -- | -- |
| 06... | 8.8 | 693 | 696 | .94 | .09 | .07 | .34 | .43 | .01 | .00 |
| 11... | -- | 680 | -- | .92 | -- | -- | -- | -- | -- | -- |
| 17... | -- | 680 | -- | .92 | -- | -- | -- | -- | -- | -- |
| 25... | -- | 682 | -- | .93 | -- | -- | -- | -- | -- | -- |
| 31... | -- | 690 | -- | .94 | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | | | | | |
| 07... | 9.4 | 710 | 674 | .97 | .09 | .12 | .39 | .48 | .03 | .01 |
| 07... | -- | 680 | -- | .92 | -- | -- | -- | -- | -- | -- |
| 14... | -- | 682 | -- | .93 | -- | -- | -- | -- | -- | -- |
| 21... | -- | 692 | -- | .94 | -- | -- | -- | -- | -- | -- |
| 28... | -- | 690 | -- | .94 | -- | -- | -- | -- | -- | -- |
| DEC | | | | | | | | | | |
| 05... | -- | 698 | -- | .95 | -- | -- | -- | -- | -- | -- |
| 05... | 8.9 | 700 | 718 | .95 | .11 | .09 | .33 | .44 | .00 | .00 |
| 12... | -- | 700 | -- | .95 | -- | -- | -- | -- | -- | -- |
| 19... | -- | 698 | -- | .95 | -- | -- | -- | -- | -- | -- |
| 27... | -- | 710 | -- | .97 | -- | -- | -- | -- | -- | -- |
| JAN | | | | | | | | | | |
| 03... | -- | 698 | -- | .95 | -- | -- | -- | -- | -- | -- |
| 09... | -- | 698 | -- | .95 | -- | -- | -- | -- | -- | -- |
| 09... | 9.6 | 733 | 713 | 1.00 | .19 | .18 | .70 | .89 | .03 | .03 |
| 16... | -- | 700 | -- | .95 | -- | -- | -- | -- | -- | -- |
| 23... | -- | 702 | -- | .95 | -- | -- | -- | -- | -- | -- |
| 30... | -- | 698 | -- | .95 | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | | | | | |
| 06... | -- | 698 | -- | .95 | -- | -- | -- | -- | -- | -- |
| 06... | 9.3 | 719 | 693 | .98 | .17 | .18 | .29 | .46 | .01 | .00 |
| 13... | -- | 696 | -- | .95 | -- | -- | -- | -- | -- | -- |
| 21... | -- | 692 | -- | .94 | -- | -- | -- | -- | -- | -- |
| 27... | -- | 696 | -- | .95 | -- | -- | -- | -- | -- | -- |
| MAR | | | | | | | | | | |
| 06... | -- | 694 | -- | .94 | -- | -- | -- | -- | -- | -- |
| 06... | 11 | 711 | 672 | .97 | .15 | .15 | .36 | .51 | .05 | .02 |
| 13... | -- | 690 | -- | .94 | -- | -- | -- | -- | -- | -- |
| 20... | -- | 684 | -- | .93 | -- | -- | -- | -- | -- | -- |
| 27... | -- | 690 | -- | .94 | -- | -- | -- | -- | -- | -- |
| APR | | | | | | | | | | |
| 03... | -- | 690 | -- | .94 | -- | -- | -- | -- | -- | -- |
| 10... | -- | 678 | -- | .92 | -- | -- | -- | -- | -- | -- |
| 10... | 9.0 | 700 | 688 | .95 | .08 | .07 | .48 | .56 | .01 | .01 |
| 17... | -- | 690 | -- | .94 | -- | -- | -- | -- | -- | -- |
| 24... | -- | 692 | -- | .94 | -- | -- | -- | -- | -- | -- |
| MAY | | | | | | | | | | |
| 01... | -- | 688 | -- | .94 | -- | -- | -- | -- | -- | -- |
| 08... | -- | 688 | -- | .94 | -- | -- | -- | -- | -- | -- |
| 08... | 6.1 | 720 | 683 | .98 | .10 | .14 | .58 | .68 | .03 | .01 |
| 15... | -- | 690 | -- | .94 | -- | -- | -- | -- | -- | -- |
| 22... | -- | 698 | -- | .95 | -- | -- | -- | -- | -- | -- |
| 30... | -- | 694 | -- | .94 | -- | -- | -- | -- | -- | -- |
| JUN | | | | | | | | | | |
| 05... | -- | 688 | -- | .94 | -- | -- | -- | -- | -- | -- |
| 12... | -- | 684 | -- | .93 | -- | -- | -- | -- | -- | -- |
| 12... | 8.9 | 696 | 673 | .95 | .12 | .14 | .58 | .70 | .01 | .00 |
| 19... | -- | 684 | -- | .93 | -- | -- | -- | -- | -- | -- |
| 26... | -- | 690 | -- | .94 | -- | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | | |
| 03... | -- | 684 | -- | .93 | -- | -- | -- | -- | -- | -- |
| 10... | -- | 684 | -- | .93 | -- | -- | -- | -- | -- | -- |
| 10... | 8.7 | 704 | 680 | .96 | .10 | .12 | .36 | .46 | .00 | .00 |
| 17... | -- | 680 | -- | .92 | -- | -- | -- | -- | -- | -- |
| 24... | -- | 682 | -- | .93 | -- | -- | -- | -- | -- | -- |
| 31... | -- | 682 | -- | .93 | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | | |
| 07... | -- | 682 | -- | .93 | -- | -- | -- | -- | -- | -- |
| 07... | 8.6 | 707 | 658 | .96 | .08 | .13 | .31 | .39 | .00 | .02 |
| 14... | -- | 690 | -- | .94 | -- | -- | -- | -- | -- | -- |
| 21... | -- | 686 | -- | .93 | -- | -- | -- | -- | -- | -- |
| 28... | -- | 686 | -- | .93 | -- | -- | -- | -- | -- | -- |
| SEP | | | | | | | | | | |
| 05... | -- | 682 | -- | .93 | -- | -- | -- | -- | -- | -- |
| 11... | -- | 688 | -- | .94 | -- | -- | -- | -- | -- | -- |
| 11... | 9.0 | 718 | 686 | .98 | .07 | .08 | .42 | .49 | .02 | .00 |
| 18... | -- | 688 | -- | .94 | -- | -- | -- | -- | -- | -- |
| 25... | -- | 692 | -- | .94 | -- | -- | -- | -- | -- | -- |

09427520 COLORADO RIVER BELOW PARKER DAM, AZ-CA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | IRON, DIS-SOLVED (UG/L AS FE) | LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) | MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) | MANGA-NESE, DIS-SOLVED (UG/L AS MN) | MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) | SELE-NIUM, TOTAL (UG/L AS SE) | ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) | ARSENIC TOTAL (UG/L AS AS) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 06... | 10 | <100 | 30 | 0 | .0 | 1 | 40 | 4 |
| NOV | | | | | | | | |
| 07... | 20 | 19 | 20 | 8 | .0 | 4 | 20 | 4 |
| DEC | | | | | | | | |
| 05... | 30 | 11 | 0 | 0 | .0 | 2 | 20 | 3 |
| JAN | | | | | | | | |
| 09... | 20 | 5 | 20 | 10 | .0 | 4 | 10 | 2 |
| FEB | | | | | | | | |
| 06... | 10 | 5 | 10 | 10 | .1 | 5 | 10 | 2 |
| MAR | | | | | | | | |
| 06... | 10 | 66 | 20 | 0 | .0 | 4 | 70 | 2 |
| APR | | | | | | | | |
| 10... | 0 | 33 | 10 | 0 | .0 | 0 | 10 | 3 |
| MAY | | | | | | | | |
| 08... | 20 | 13 | 30 | 20 | .1 | 2 | 20 | 3 |
| JUN | | | | | | | | |
| 12... | 10 | 8 | 30 | 10 | .0 | 0 | 20 | 4 |
| JUL | | | | | | | | |
| 10... | 30 | 4 | 20 | 10 | .0 | 0 | 10 | 2 |
| AUG | | | | | | | | |
| 07... | <10 | 5 | 20 | 9 | .1 | 2 | 20 | 3 |
| SEP | | | | | | | | |
| 11... | 10 | 0 | 30 | 10 | .1 | 2 | 10 | 1 |

09427520 COLORADO RIVER BELOW PARKER DAM, AZ-CA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | BORON, TOTAL RECOV-ERABLE (UG/L AS B) | BORON, DIS-SOLVED (UG/L AS B) | CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) | IRON, TOTAL RECOV-ERABLE (UG/L AS FE) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS (UG/L) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 06... | 160 | 130 | <10 | 20 | <10 | 80 | .00 | 3 |
| NOV | | | | | | | | |
| 07... | 160 | 140 | 2 | 12 | 2 | 90 | .00 | 1 |
| DEC | | | | | | | | |
| 05... | 210 | 150 | 1 | 0 | 4 | 130 | .00 | 0 |
| JAN | | | | | | | | |
| 09... | 180 | 150 | 0 | 0 | 17 | 70 | .00 | 3 |
| FEB | | | | | | | | |
| 06... | 180 | 140 | 3 | 0 | 1 | 70 | .00 | 2 |
| MAR | | | | | | | | |
| 06... | 180 | 140 | 3 | 10 | 22 | 390 | .00 | 3 |
| APR | | | | | | | | |
| 10... | 170 | 130 | 3 | 10 | 9 | 140 | .00 | 2 |
| MAY | | | | | | | | |
| 08... | 250 | 140 | 2 | 0 | 6 | 190 | .00 | 0 |
| JUN | | | | | | | | |
| 12... | 200 | 140 | 2 | 5 | 5 | 110 | .00 | 0 |
| JUL | | | | | | | | |
| 10... | 200 | 130 | 1 | 10 | 7 | 160 | .00 | 0 |
| AUG | | | | | | | | |
| 07... | 190 | 140 | 0 | 0 | 6 | 150 | .00 | 0 |
| SEP | | | | | | | | |
| 11... | 190 | 140 | 0 | 10 | 4 | 160 | .00 | 0 |

< Actual value is known to be less than value shown.

## 09428500 COLORADO RIVER INDIAN RESERVATION MAIN CANAL NEAR PARKER, AZ

LOCATION.--Two gages, lat 34°10'04", long 114°16'33", in SE¼NW¼ sec.31, T.10 N., R.19 W., Gila and Salt River meridian, Yuma County, Hydrologic Unit 15030104. Forebay gage, on left wall of canal intake, 90 ft (30 m) upstream from diversion gates at Arizona end of Headgate Rock Dam. Tailrace gage, on right bank of canal 250 ft (80 m) downstream from gates. Both gages are on Colorado River Indian Reservation 1.7 mi (2.7 km) northeast of Parker and 14 mi (23 km) downstream from Parker Dam.

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1915 to current year (prior to January 1937, fiscal year diversions only; January 1937 to September 1954, monthly diversions only).

REVISED RECORDS.--WSP 1513: 1915-36.

GAGE.--Water-stage recorders above and below intake gates to record head and recorder to show gate openings (since Oct. 1, 1972), with supplementary tape gages read daily and at time of each gate change (prior to Oct. 1, 1972, tape gages only). Datum of gages is 350.00 ft (106.680 m), datum in use locally, or 350.51 ft (106.835 m) National Geodetic Vertical Datum of 1929. Normal operating level of forebay is 364.3 ft (111.04 m); prior to July 9, 1962, normal operating level of forebay was 362.9 ft (110.61 m), datum in use locally. Prior to October 1954, discharge computed by various methods as described in WSP 1313.

REMARKS.--Records excellent. Daily diversions computed on basis of head on intake gates and gate openings. Records show water diverted to project and surface return flows to Colorado River through two wasteways and two drains; three of these are equipped with water-stage recorders. Water used for irrigation of 72,166 acres (292 km²) during 1977 calendar year on east side of Colorado River between Parker and Ehrenberg.

COOPERATION.--Log of canal intake gate opening (supplementary record) furnished by Bureau of Indian Affairs.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily, 1,650 ft³/s (46.7 m³/s) Aug. 6, 1977; no flow at times in most years.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 539 | 518 | 453 | 232 | .00 | 398 | 1430 | 875 | 1330 | 1270 | 1480 | 1250 |
| 2 | 557 | 516 | 482 | 340 | 62 | 297 | 1290 | 823 | 1350 | 1090 | 1530 | 1180 |
| 3 | 528 | 554 | 422 | 510 | 63 | 207 | 1250 | 812 | 1350 | 1130 | 1570 | 1120 |
| 4 | 591 | 553 | 305 | 568 | .00 | 179 | 1290 | 767 | 1230 | 1170 | 1540 | 1100 |
| 5 | 635 | 526 | 286 | 466 | .00 | 179 | 1310 | 960 | 1090 | 1300 | 1550 | 1250 |
| 6 | 533 | 439 | 322 | 243 | .00 | 212 | 1280 | 970 | 1150 | 1390 | 1530 | 1310 |
| 7 | 447 | 411 | 312 | .00 | 82 | 282 | 1170 | 948 | 1180 | 1420 | 1530 | 1270 |
| 8 | 471 | 411 | 291 | .00 | 190 | 370 | 1110 | 940 | 1160 | 1360 | 1500 | 1300 |
| 9 | 370 | 390 | 349 | .00 | 153 | 448 | 1140 | 908 | 1200 | 1380 | 1440 | 1240 |
| 10 | 431 | 374 | 342 | .00 | 85 | 480 | 1160 | 934 | 1230 | 1390 | 1480 | 1160 |
| 11 | 562 | 376 | 291 | .00 | .00 | 519 | 1090 | 1120 | 1270 | 1450 | 1510 | 1110 |
| 12 | 566 | 348 | 324 | .00 | 63 | 538 | 1060 | 1160 | 1300 | 1470 | 1500 | 1120 |
| 13 | 554 | 314 | 395 | .00 | 94 | 506 | 1190 | 1180 | 1330 | 1540 | 1440 | 1080 |
| 14 | 544 | 313 | 421 | .00 | 94 | 578 | 1250 | 1140 | 1350 | 1570 | 1360 | 1010 |
| 15 | 545 | 373 | 464 | .00 | 152 | 748 | 1250 | 1150 | 1450 | 1560 | 1330 | 927 |
| 16 | 494 | 540 | 445 | .00 | 179 | 795 | 1230 | 967 | 1560 | 1550 | 1290 | 790 |
| 17 | 466 | 566 | 324 | .00 | 215 | 765 | 1240 | 1090 | 1550 | 1570 | 1280 | 687 |
| 18 | 537 | 511 | 245 | .00 | 289 | 768 | 1240 | 1120 | 1510 | 1590 | 1310 | 722 |
| 19 | 568 | 479 | 281 | .00 | 342 | 777 | 1230 | 1100 | 1450 | 1580 | 1290 | 763 |
| 20 | 578 | 489 | 356 | .00 | 384 | 861 | 1310 | 1070 | 1430 | 1580 | 1230 | 928 |
| 21 | 638 | 460 | 429 | .00 | 380 | 947 | 1380 | 1030 | 1490 | 1570 | 1190 | 950 |
| 22 | 609 | 406 | 435 | .00 | 464 | 1060 | 1260 | 1060 | 1450 | 1570 | 1330 | 911 |
| 23 | 493 | 433 | 400 | .00 | 509 | 1150 | 1210 | 1090 | 1380 | 1530 | 1380 | 808 |
| 24 | 490 | 366 | 312 | .00 | 546 | 1140 | 1200 | 1180 | 1350 | 1440 | 1410 | 705 |
| 25 | 531 | 322 | 219 | 140 | 545 | 1040 | 1080 | 1170 | 1310 | 1340 | 1440 | 701 |
| 26 | 530 | 282 | 190 | 335 | 539 | 1040 | 1050 | 1080 | 1300 | 1320 | 1430 | 742 |
| 27 | 516 | 279 | 192 | 144 | 515 | 1070 | 1050 | 1080 | 1310 | 1310 | 1350 | 854 |
| 28 | 549 | 314 | 270 | 93 | 406 | 1210 | 1010 | 1090 | 1420 | 1270 | 1310 | 791 |
| 29 | 515 | 352 | 408 | 93 | --- | 1340 | 969 | 1100 | 1340 | 1230 | 1380 | 679 |
| 30 | 437 | 421 | 304 | 95 | --- | 1370 | 906 | 1180 | 1240 | 1210 | 1400 | 630 |
| 31 | 451 | --- | 218 | 36 | --- | 1410 | --- | 1280 | --- | 1280 | 1350 | --- |
| TOTAL | 16275 | 12636 | 10487 | 3295.00 | 6351.00 | 22684 | 35635 | 32374 | 40060 | 43430 | 43660 | 29088 |
| MEAN | 525 | 421 | 338 | 106 | 227 | 732 | 1188 | 1044 | 1335 | 1401 | 1408 | 970 |
| MAX | 638 | 566 | 482 | 568 | 546 | 1410 | 1430 | 1280 | 1560 | 1590 | 1570 | 1310 |
| MIN | 370 | 279 | 190 | .00 | .00 | 179 | 906 | 767 | 1090 | 1090 | 1190 | 630 |
| AC-FT | 32280 | 25060 | 20800 | 6540 | 12600 | 44990 | 70680 | 64210 | 79460 | 86140 | 86600 | 57700 |
| (†) | 21930 | 19830 | 18050 | 13840 | 10750 | 15230 | 24800 | 27520 | 27410 | 29450 | 29570 | 26490 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1977 | TOTAL | 300058.00 | MEAN 822 | MAX 1650 | MIN .00 | AC-FT 595200 | †273800 |
| WTR YR 1978 | TOTAL | 295975.00 | MEAN 811 | MAX 1590 | MIN .00 | AC-FT 587100 | †264900 |

† Return surface flow, in acre-feet, to Colorado River.

09428500 COLORADO RIVER INDIAN RESERVATION MAIN CANAL NEAR PARKER, AZ--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1969 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 03... | 1015 | 579 | 1080 | 7.5 | 22.0 | 320 | 200 | 78 | 30 | 110 | 2.7 | 5.0 |
| 11... | 1000 | -- | 1090 | -- | 21.0 | -- | -- | -- | -- | -- | -- | -- |
| 18... | 1150 | -- | 1080 | -- | 22.0 | -- | -- | -- | -- | -- | -- | -- |
| 25... | 1000 | -- | 1080 | -- | 21.0 | -- | -- | -- | -- | -- | -- | -- |
| 31... | 0950 | -- | 1080 | -- | 21.5 | -- | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | | | | | | | |
| 07... | 1250 | 458 | 1080 | 7.7 | 20.0 | 330 | 210 | 83 | 30 | 110 | 2.6 | 5.0 |
| 14... | 1040 | -- | 1140 | -- | 19.0 | -- | -- | -- | -- | -- | -- | -- |
| 21... | 1035 | -- | 1080 | -- | 18.5 | -- | -- | -- | -- | -- | -- | -- |
| 28... | 0955 | -- | 1100 | -- | 18.0 | -- | -- | -- | -- | -- | -- | -- |
| DEC | | | | | | | | | | | | |
| 05... | 1250 | 286 | 1090 | 7.8 | 18.0 | 340 | 220 | 83 | 33 | 100 | 2.4 | 5.0 |
| 12... | 1300 | -- | 1090 | -- | 15.0 | -- | -- | -- | -- | -- | -- | -- |
| 19... | 1140 | -- | 1100 | -- | 15.0 | -- | -- | -- | -- | -- | -- | -- |
| 27... | 0845 | .00 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JAN | | | | | | | | | | | | |
| 03... | 1300 | 579 | 1090 | 7.7 | 14.0 | 340 | 200 | 83 | 31 | 110 | 2.6 | 4.9 |
| 09... | 0900 | -- | 1100 | -- | 11.0 | -- | -- | -- | -- | -- | -- | -- |
| 16... | 1220 | -- | 1190 | -- | 14.5 | -- | -- | -- | -- | -- | -- | -- |
| 23... | 1320 | -- | 1070 | -- | 12.0 | -- | -- | -- | -- | -- | -- | -- |
| 30... | 1125 | -- | 1100 | -- | 14.0 | -- | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | | | | | | | |
| 06... | 0940 | .00 | 1090 | 7.9 | 15.0 | 340 | 200 | 83 | 31 | 110 | 2.6 | 4.7 |
| 13... | 0800 | -- | 1100 | -- | 16.5 | -- | -- | -- | -- | -- | -- | -- |
| 21... | 0900 | -- | 1090 | -- | 14.5 | -- | -- | -- | -- | -- | -- | -- |
| 27... | 1220 | -- | 1100 | -- | 15.0 | -- | -- | -- | -- | -- | -- | -- |
| MAR | | | | | | | | | | | | |
| 06... | 1100 | 231 | 1090 | 7.9 | 15.0 | 320 | 190 | 77 | 31 | 110 | 2.7 | 4.8 |
| 13... | 1240 | -- | 1130 | -- | 14.5 | -- | -- | -- | -- | -- | -- | -- |
| 20... | 1120 | -- | 1080 | -- | 16.5 | -- | -- | -- | -- | -- | -- | -- |
| 27... | 1300 | -- | 1090 | -- | 15.5 | -- | -- | -- | -- | -- | -- | -- |
| APR | | | | | | | | | | | | |
| 03... | 1310 | 1270 | 1080 | 7.9 | 19.0 | 330 | 200 | 82 | 31 | 100 | 2.4 | 5.0 |
| 10... | 1045 | -- | 1060 | -- | 16.0 | -- | -- | -- | -- | -- | -- | -- |
| 17... | 1000 | -- | 1080 | -- | 17.0 | -- | -- | -- | -- | -- | -- | -- |
| 24... | 1030 | -- | 1130 | -- | 17.0 | -- | -- | -- | -- | -- | -- | -- |
| MAY | | | | | | | | | | | | |
| 01... | 1145 | 854 | 1090 | 7.7 | 19.5 | 330 | 190 | 81 | 31 | 100 | 2.4 | 5.1 |
| 08... | 1000 | -- | 1090 | -- | 20.0 | -- | -- | -- | -- | -- | -- | -- |
| 15... | 1000 | -- | 1090 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 22... | 0850 | -- | 1100 | -- | 20.0 | -- | -- | -- | -- | -- | -- | -- |
| 30... | 0850 | -- | 1100 | -- | 22.0 | -- | -- | -- | -- | -- | -- | -- |
| JUN | | | | | | | | | | | | |
| 05... | 0930 | 925 | 1090 | 7.8 | 21.0 | 340 | 200 | 85 | 31 | 100 | 2.4 | 5.1 |
| 12... | 0920 | -- | 1150 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 19... | 0900 | -- | 1090 | -- | 23.5 | -- | -- | -- | -- | -- | -- | -- |
| 26... | 1010 | -- | 1080 | -- | 24.0 | -- | -- | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | | | | |
| 03... | 1240 | 1150 | 1090 | 7.9 | 24.5 | 330 | 210 | 85 | 29 | 100 | 2.4 | 4.8 |
| 10... | 1000 | -- | 1080 | -- | 24.0 | -- | -- | -- | -- | -- | -- | -- |
| 17... | 1010 | -- | 1080 | -- | 25.5 | -- | -- | -- | -- | -- | -- | -- |
| 24... | 1325 | -- | 1080 | -- | 26.5 | -- | -- | -- | -- | -- | -- | -- |
| 31... | 0930 | -- | 1180 | -- | 20.0 | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | | | | |
| 07... | 1225 | 1500 | 1080 | 7.7 | 26.5 | 320 | 200 | 80 | 30 | 110 | 2.7 | 4.9 |
| 14... | 0930 | -- | 1080 | -- | 25.5 | -- | -- | -- | -- | -- | -- | -- |
| 21... | 0910 | -- | 1080 | -- | 25.5 | -- | -- | -- | -- | -- | -- | -- |
| 28... | 0900 | -- | 1090 | -- | 25.5 | -- | -- | -- | -- | -- | -- | -- |
| SEP | | | | | | | | | | | | |
| 05... | 1310 | 1520 | 1090 | 7.7 | 24.5 | 330 | 190 | 81 | 30 | 110 | 2.7 | 4.9 |
| 11... | 1325 | -- | 1090 | -- | 24.0 | -- | -- | -- | -- | -- | -- | -- |
| 18... | 1315 | -- | 1090 | -- | 23.0 | -- | -- | -- | -- | -- | -- | -- |
| 25... | 1320 | -- | 1090 | -- | 23.5 | -- | -- | -- | -- | -- | -- | -- |

09428500 COLORADO RIVER INDIAN RESERVATION MAIN CANAL NEAR PARKER, AZ--Continued

REMARKS.--No flow Jan. 7-24; Feb. 1, 4-6, 11.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | BICAR-BONATE (MG/L AS HCO3) | CAR-BONATE (MG/L AS CO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER AC-FT) | NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) | BORON, DIS-SOLVED (UG/L AS B) | IRON, DIS-SOLVED (UG/L AS FE) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 03... | 150 | 0 | 300 | 91 | .3 | 8.8 | 684 | 697 | .93 | -- | 140 | 20 |
| 11... | -- | -- | -- | -- | -- | -- | 694 | -- | .94 | -- | -- | -- |
| 16... | -- | -- | -- | -- | -- | -- | 690 | -- | .94 | -- | -- | -- |
| 25... | -- | -- | -- | -- | -- | -- | 688 | -- | .94 | -- | -- | -- |
| 31... | -- | -- | -- | -- | -- | -- | 688 | -- | .94 | -- | -- | -- |
| NOV | | | | | | | | | | | | |
| 07... | 150 | 0 | 310 | 95 | .3 | 8.6 | 690 | 716 | .94 | -- | 140 | 10 |
| 14... | -- | -- | -- | -- | -- | -- | 730 | -- | .99 | -- | -- | -- |
| 21... | -- | -- | -- | -- | -- | -- | 690 | -- | .94 | -- | -- | -- |
| 28... | -- | -- | -- | -- | -- | -- | 702 | -- | .95 | -- | -- | -- |
| DEC | | | | | | | | | | | | |
| 05... | 150 | 0 | 310 | 91 | .4 | 9.2 | 698 | 706 | .95 | -- | 150 | 20 |
| 12... | -- | -- | -- | -- | -- | -- | 698 | -- | .95 | -- | -- | -- |
| 19... | -- | -- | -- | -- | -- | -- | 706 | -- | .96 | -- | -- | -- |
| 27... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JAN | | | | | | | | | | | | |
| 03... | 160 | 0 | 310 | 93 | .4 | 8.8 | 700 | 720 | .95 | -- | 150 | 20 |
| 09... | -- | -- | -- | -- | -- | -- | 702 | -- | .95 | -- | -- | -- |
| 16... | -- | -- | -- | -- | -- | -- | 762 | -- | 1.04 | -- | -- | -- |
| 23... | -- | -- | -- | -- | -- | -- | 684 | -- | .93 | -- | -- | -- |
| 30... | -- | -- | -- | -- | -- | -- | 706 | -- | .96 | -- | -- | -- |
| FEB | | | | | | | | | | | | |
| 06... | 160 | 0 | 290 | 92 | .3 | 9.2 | 700 | 699 | .95 | -- | 140 | 0 |
| 13... | -- | -- | -- | -- | -- | -- | 706 | -- | .96 | -- | -- | -- |
| 21... | -- | -- | -- | -- | -- | -- | 694 | -- | .94 | -- | -- | -- |
| 27... | -- | -- | -- | -- | -- | -- | 702 | -- | .95 | -- | -- | -- |
| MAR | | | | | | | | | | | | |
| 06... | 160 | 0 | 280 | 90 | .3 | 7.8 | 700 | 680 | .95 | -- | 140 | 10 |
| 13... | -- | -- | -- | -- | -- | -- | 722 | -- | .98 | -- | -- | -- |
| 20... | -- | -- | -- | -- | -- | -- | 690 | -- | .94 | -- | -- | -- |
| 27... | -- | -- | -- | -- | -- | -- | 698 | -- | .95 | -- | -- | -- |
| APR | | | | | | | | | | | | |
| 03... | 160 | 0 | 280 | 89 | .4 | 9.2 | 690 | 676 | .94 | -- | 150 | 0 |
| 10... | -- | -- | -- | -- | -- | -- | 672 | -- | .91 | -- | -- | -- |
| 17... | -- | -- | -- | -- | -- | -- | 692 | -- | .94 | -- | -- | -- |
| 24... | -- | -- | -- | -- | -- | -- | 724 | -- | .98 | -- | -- | -- |
| MAY | | | | | | | | | | | | |
| 01... | 170 | 0 | 300 | 90 | .4 | 9.0 | 694 | 700 | .94 | -- | 140 | 10 |
| 08... | -- | -- | -- | -- | -- | -- | 698 | -- | .95 | -- | -- | -- |
| 15... | -- | -- | -- | -- | -- | -- | 698 | -- | .95 | -- | -- | -- |
| 22... | -- | -- | -- | -- | -- | -- | 702 | -- | .95 | -- | -- | -- |
| 30... | -- | -- | -- | -- | -- | -- | 698 | -- | .95 | -- | -- | -- |
| JUN | | | | | | | | | | | | |
| 05... | 170 | 0 | 280 | 96 | .4 | 9.4 | 692 | 691 | .94 | -- | 140 | 20 |
| 12... | -- | -- | -- | -- | -- | -- | 728 | -- | .99 | -- | -- | -- |
| 19... | -- | -- | -- | -- | -- | -- | 690 | -- | .94 | -- | -- | -- |
| 26... | -- | -- | -- | -- | -- | -- | 692 | -- | .94 | -- | -- | -- |
| JUL | | | | | | | | | | | | |
| 03... | 150 | 0 | 280 | 91 | .3 | 8.9 | 692 | 674 | .94 | .15 | 150 | 20 |
| 10... | -- | -- | -- | -- | -- | -- | 686 | -- | .93 | -- | -- | -- |
| 17... | -- | -- | -- | -- | -- | -- | 682 | -- | .93 | -- | -- | -- |
| 24... | -- | -- | -- | -- | -- | -- | 680 | -- | .92 | -- | -- | -- |
| 31... | -- | -- | -- | -- | -- | -- | 748 | -- | 1.02 | -- | -- | -- |
| AUG | | | | | | | | | | | | |
| 07... | 150 | 0 | 290 | 92 | .3 | 9.0 | 680 | 691 | .92 | .20 | 150 | 10 |
| 14... | -- | -- | -- | -- | -- | -- | 692 | -- | .94 | -- | -- | -- |
| 21... | -- | -- | -- | -- | -- | -- | 688 | -- | .94 | -- | -- | -- |
| 28... | -- | -- | -- | -- | -- | -- | 690 | -- | .94 | -- | -- | -- |
| SEP | | | | | | | | | | | | |
| 05... | 160 | 0 | 290 | 96 | .5 | 8.7 | 688 | 700 | .94 | .01 | 150 | 10 |
| 11... | -- | -- | -- | -- | -- | -- | 688 | -- | .94 | -- | -- | -- |
| 18... | -- | -- | -- | -- | -- | -- | 696 | -- | .95 | -- | -- | -- |
| 25... | -- | -- | -- | -- | -- | -- | 696 | -- | .95 | -- | -- | -- |

## 09428510 COLORADO RIVER INDIAN RESERVATION POSTON WASTEWAY NEAR POSTON, AZ

LOCATION.--Lat 33°59'58", long 114°26'41", in SW¼SE¼ sec.28, T.8 N., R.21 W., Yuma County, Hydrologic Unit 15030104, at gaging station 0.8 mi (1.3 km) upstream from mouth, 2.5 mi (4.0 km) west of Poston, and 14 mi (23 km) southwest of Parker.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | HARDNESS (MG/L AS CACO3) | HARDNESS, NONCARBONATE (MG/L CACO3) | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) | SODIUM ADSORPTION RATIO | POTASSIUM, DISSOLVED (MG/L AS K) | BICARBONATE (MG/L AS HCO3) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 03... | 1040 | 1940 | 7.6 | 23.0 | 580 | 340 | 150 | 51 | 220 | 4.0 | 5.5 | 300 |
| 11... | 0910 | 1890 | -- | 21.0 | -- | -- | -- | -- | -- | -- | -- | -- |
| 17... | 1215 | 1820 | -- | 23.0 | -- | -- | -- | -- | -- | -- | -- | -- |
| 25... | 1025 | 1940 | -- | 21.5 | -- | -- | -- | -- | -- | -- | -- | -- |
| 31... | 1025 | 1890 | -- | 22.0 | -- | -- | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | | | | | | | |
| 07... | 1225 | 1960 | 7.8 | 21.0 | 610 | 360 | 160 | 52 | 230 | 4.0 | 6.0 | 310 |
| 14... | 0925 | 1910 | -- | 18.0 | -- | -- | -- | -- | -- | -- | -- | -- |
| 21... | 0915 | 1550 | -- | 19.5 | -- | -- | -- | -- | -- | -- | -- | -- |
| 28... | 0830 | 1830 | -- | 17.0 | -- | -- | -- | -- | -- | -- | -- | -- |
| DEC | | | | | | | | | | | | |
| 05... | 1320 | 1850 | 7.8 | 18.5 | 560 | 320 | 140 | 50 | 200 | 3.7 | 5.5 | 290 |
| 12... | 1325 | 1950 | -- | 16.0 | -- | -- | -- | -- | -- | -- | -- | -- |
| 19... | 1300 | 1740 | -- | 15.0 | -- | -- | -- | -- | -- | -- | -- | -- |
| 27... | 1330 | 1930 | -- | 15.5 | -- | -- | -- | -- | -- | -- | -- | -- |
| JAN | | | | | | | | | | | | |
| 03... | 1340 | 1890 | 7.4 | 14.5 | 580 | 340 | 150 | 50 | 210 | 3.8 | 5.5 | 290 |
| 09... | 0820 | 2350 | -- | 15.5 | -- | -- | -- | -- | -- | -- | -- | -- |
| 16... | 1100 | 2410 | -- | 15.0 | -- | -- | -- | -- | -- | -- | -- | -- |
| 23... | 1340 | 2150 | -- | 14.5 | -- | -- | -- | -- | -- | -- | -- | -- |
| 30... | 1200 | 1740 | -- | 13.5 | -- | -- | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | | | | | | | |
| 06... | 1030 | 2160 | 7.9 | 15.5 | 670 | 400 | 170 | 60 | 250 | 4.2 | 5.6 | 330 |
| 13... | 0845 | 1960 | -- | 16.5 | -- | -- | -- | -- | -- | -- | -- | -- |
| 21... | 1010 | 2190 | -- | 14.5 | -- | -- | -- | -- | -- | -- | -- | -- |
| 27... | 1145 | 1910 | -- | 16.5 | -- | -- | -- | -- | -- | -- | -- | -- |
| MAR | | | | | | | | | | | | |
| 06... | 1200 | 2000 | 7.8 | 14.5 | 570 | 320 | 140 | 53 | 230 | 4.2 | 5.6 | 300 |
| 13... | 1300 | 1890 | -- | 16.5 | -- | -- | -- | -- | -- | -- | -- | -- |
| 20... | 1045 | 1750 | -- | 19.0 | -- | -- | -- | -- | -- | -- | -- | -- |
| 27... | 1325 | 1720 | -- | 17.0 | -- | -- | -- | -- | -- | -- | -- | -- |
| APR | | | | | | | | | | | | |
| 03... | 1230 | 1470 | 7.8 | 19.0 | 440 | 250 | 110 | 39 | 150 | 3.1 | 5.6 | 220 |
| 10... | 0900 | 1630 | -- | 18.5 | -- | -- | -- | -- | -- | -- | -- | -- |
| 17... | 1035 | 1610 | -- | 18.5 | -- | -- | -- | -- | -- | -- | -- | -- |
| 24... | 0910 | 1440 | -- | 19.5 | -- | -- | -- | -- | -- | -- | -- | -- |
| MAY | | | | | | | | | | | | |
| 01... | 1125 | 1800 | 7.6 | 20.0 | 550 | 320 | 140 | 48 | 200 | 3.7 | 5.8 | 280 |
| 08... | 1030 | 1380 | -- | 21.0 | -- | -- | -- | -- | -- | -- | -- | -- |
| 15... | 1030 | 1390 | -- | 21.5 | -- | -- | -- | -- | -- | -- | -- | -- |
| 22... | 0815 | 1350 | -- | 20.5 | -- | -- | -- | -- | -- | -- | -- | -- |
| 30... | 0805 | 1870 | -- | 22.0 | -- | -- | -- | -- | -- | -- | -- | -- |
| JUN | | | | | | | | | | | | |
| 05... | 1000 | 1370 | 7.9 | 20.5 | 430 | 260 | 110 | 37 | 140 | 2.9 | 5.5 | 200 |
| 12... | 1000 | 1330 | -- | 23.5 | -- | -- | -- | -- | -- | -- | -- | -- |
| 19... | 0930 | 1240 | -- | 23.5 | -- | -- | -- | -- | -- | -- | -- | -- |
| 26... | 0850 | 1730 | -- | 22.0 | -- | -- | -- | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | | | | |
| 03... | 1320 | 1790 | 7.8 | 24.5 | 540 | 330 | 140 | 45 | 180 | 3.4 | 5.5 | 250 |
| 10... | 1025 | 1730 | -- | 25.0 | -- | -- | -- | -- | -- | -- | -- | -- |
| 17... | 0830 | 1820 | -- | 24.5 | -- | -- | -- | -- | -- | -- | -- | -- |
| 24... | 1200 | 1550 | -- | 25.0 | -- | -- | -- | -- | -- | -- | -- | -- |
| 31... | 1125 | 1860 | -- | 26.5 | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | | | | |
| 07... | 1050 | 1790 | 7.7 | 27.0 | 530 | 320 | 140 | 44 | 200 | 3.8 | 6.0 | 260 |
| 14... | 0850 | 1460 | -- | 25.0 | -- | -- | -- | -- | -- | -- | -- | -- |
| 21... | 0830 | 1570 | -- | 25.5 | -- | -- | -- | -- | -- | -- | -- | -- |
| 28... | 0830 | 1660 | -- | 23.5 | -- | -- | -- | -- | -- | -- | -- | -- |
| SEP | | | | | | | | | | | | |
| 05... | 1330 | 1780 | 8.0 | -- | 510 | 300 | 130 | 44 | 200 | 3.9 | 5.5 | 250 |
| 11... | 1220 | 1580 | -- | 25.0 | -- | -- | -- | -- | -- | -- | -- | -- |
| 18... | 1200 | 1920 | -- | 23.5 | -- | -- | -- | -- | -- | -- | -- | -- |
| 25... | 1340 | 1500 | -- | 23.0 | -- | -- | -- | -- | -- | -- | -- | -- |

09428510 COLORADO RIVER INDIAN RESERVATION POSTON WASTEWAY NEAR POSTON, AZ--Continued

PERIOD OF RECORD.--October 1968 to current year.

REMARKS.--Unpublished miscellaneous chemical analyses for water years 1965-68 available from district office in Tucson, Ariz.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | CARBONATE (MG/L AS CO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER AC-FT) | NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) | BORON, DIS-SOLVED (UG/L AS B) | IRON, DIS-SOLVED (UG/L AS FE) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 03... | 0 | 520 | 190 | .6 | 19 | 1330 | 1300 | 1.81 | -- | 260 | 30 |
| 11... | -- | -- | -- | -- | -- | 1280 | -- | 1.74 | -- | -- | -- |
| 17... | -- | -- | -- | -- | -- | 1240 | -- | 1.69 | -- | -- | -- |
| 25... | -- | -- | -- | -- | -- | 1310 | -- | 1.78 | -- | -- | -- |
| 31... | -- | -- | -- | -- | -- | 1270 | -- | 1.73 | -- | -- | -- |
| NOV | | | | | | | | | | | |
| 07... | 0 | 540 | 190 | .6 | 21 | 1320 | 1350 | 1.80 | -- | 290 | 30 |
| 14... | -- | -- | -- | -- | -- | 1290 | -- | 1.75 | -- | -- | -- |
| 21... | -- | -- | -- | -- | -- | 1030 | -- | 1.40 | -- | -- | -- |
| 28... | -- | -- | -- | -- | -- | 1250 | -- | 1.70 | -- | -- | -- |
| DEC | | | | | | | | | | | |
| 05... | 0 | 520 | 170 | .6 | 18 | 1250 | 1250 | 1.70 | -- | 270 | 10 |
| 12... | -- | -- | -- | -- | -- | 1330 | -- | 1.81 | -- | -- | -- |
| 19... | -- | -- | -- | -- | -- | 1150 | -- | 1.56 | -- | -- | -- |
| 27... | -- | -- | -- | -- | -- | 1310 | -- | 1.78 | -- | -- | -- |
| JAN | | | | | | | | | | | |
| 03... | 0 | 540 | 180 | .6 | 19 | 1290 | 1300 | 1.75 | -- | 270 | 10 |
| 09... | -- | -- | -- | -- | -- | 1610 | -- | 2.19 | -- | -- | -- |
| 16... | -- | -- | -- | -- | -- | 1590 | -- | 2.16 | -- | -- | -- |
| 23... | -- | -- | -- | -- | -- | 1450 | -- | 1.97 | -- | -- | -- |
| 30... | -- | -- | -- | -- | -- | 1170 | -- | 1.59 | -- | -- | -- |
| FEB | | | | | | | | | | | |
| 06... | 0 | 590 | 220 | .7 | 22 | 1460 | 1480 | 1.99 | -- | 320 | 0 |
| 13... | -- | -- | -- | -- | -- | 1310 | -- | 1.78 | -- | -- | -- |
| 21... | -- | -- | -- | -- | -- | 1480 | -- | 2.01 | -- | -- | -- |
| 27... | -- | -- | -- | -- | -- | 1280 | -- | 1.74 | -- | -- | -- |
| MAR | | | | | | | | | | | |
| 06... | 0 | 540 | 190 | .7 | 16 | 1340 | 1320 | 1.82 | -- | 300 | 10 |
| 13... | -- | -- | -- | -- | -- | 1250 | -- | 1.70 | -- | -- | -- |
| 20... | -- | -- | -- | -- | -- | 1200 | -- | 1.63 | -- | -- | -- |
| 27... | -- | -- | -- | -- | -- | 1160 | -- | 1.58 | -- | -- | -- |
| APR | | | | | | | | | | | |
| 03... | 0 | 390 | 140 | .7 | 13 | 970 | 957 | 1.32 | -- | 200 | 10 |
| 10... | -- | -- | -- | -- | -- | 1100 | -- | 1.50 | -- | -- | -- |
| 17... | -- | -- | -- | -- | -- | 1070 | -- | 1.46 | -- | -- | -- |
| 24... | -- | -- | -- | -- | -- | 948 | -- | 1.29 | -- | -- | -- |
| MAY | | | | | | | | | | | |
| 01... | 0 | 480 | 170 | .6 | 17 | 1200 | 1200 | 1.63 | -- | 260 | 20 |
| 08... | -- | -- | -- | -- | -- | 894 | -- | 1.22 | -- | -- | -- |
| 15... | -- | -- | -- | -- | -- | 914 | -- | 1.24 | -- | -- | -- |
| 22... | -- | -- | -- | -- | -- | 880 | -- | 1.20 | -- | -- | -- |
| 30... | -- | -- | -- | -- | -- | 1210 | -- | 1.65 | -- | -- | -- |
| JUN | | | | | | | | | | | |
| 05... | -- | 360 | 130 | .4 | 13 | 898 | 895 | 1.22 | -- | 200 | 0 |
| 12... | -- | -- | -- | -- | -- | 870 | -- | 1.18 | -- | -- | -- |
| 19... | -- | -- | -- | -- | -- | 786 | -- | 1.07 | -- | -- | -- |
| 26... | -- | -- | -- | -- | -- | 1160 | -- | 1.58 | -- | -- | -- |
| JUL | | | | | | | | | | | |
| 03... | 0 | 490 | 170 | .5 | 17 | 1200 | 1170 | 1.63 | .08 | 250 | 20 |
| 10... | -- | -- | -- | -- | -- | 1150 | -- | 1.56 | -- | -- | -- |
| 17... | -- | -- | -- | -- | -- | 1200 | -- | 1.63 | -- | -- | -- |
| 24... | -- | -- | -- | -- | -- | 1000 | -- | 1.36 | -- | -- | -- |
| 31... | -- | -- | -- | -- | -- | 1220 | -- | 1.66 | -- | -- | -- |
| AUG | | | | | | | | | | | |
| 07... | 0 | 490 | 170 | .5 | 17 | 1180 | 1200 | 1.60 | .59 | 270 | 10 |
| 14... | -- | -- | -- | -- | -- | 972 | -- | 1.32 | -- | -- | -- |
| 21... | -- | -- | -- | -- | -- | 1060 | -- | 1.44 | -- | -- | -- |
| 28... | -- | -- | -- | -- | -- | 1070 | -- | 1.46 | -- | -- | -- |
| SEP | | | | | | | | | | | |
| 05... | 0 | 490 | 170 | .7 | 18 | 1150 | 1180 | 1.56 | .06 | 280 | 10 |
| 11... | -- | -- | -- | -- | -- | 1050 | -- | 1.43 | -- | -- | -- |
| 18... | -- | -- | -- | -- | -- | 1310 | -- | 1.78 | -- | -- | -- |
| 25... | -- | -- | -- | -- | -- | 976 | -- | 1.33 | -- | -- | -- |

## 09429000 PALO VERDE CANAL NEAR BLYTHE, CA

LOCATION.--Lat 33°43'55", long 114°30'40", in NW¼NE¼ sec.19, T.5 S., R.24 E., San Bernardino meridian, Riverside County, Hydrologic Unit 15030104, at canal intake structure on west side of Palo Verde diversion dam, 10 mi (16 km) northeast of Blythe and 44 mi (71 km) downstream from Headgate Rock Dam.

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1922 to December 1923, January 1925 to current year (prior to October 1950, monthly discharge only).

REVISED RECORD.--WSP 1213: 1946-48.

GAGE.--Recording gages above and below intakes to record head. Since May 18, 1964, recorder to show gate openings. Datum of gage is: Forebay gage, National Geodetic Vertical Datum of 1929; tailrace gage, 274.13 ft (83.555 m) NGVD. Aug. 7, 1950, to Nov. 30, 1952, water-stage recorder on tailrace and auxiliary recorder 0.5 mi (0.8 km) downstream and Dec. 1, 1952, to Oct. 28, 1957, recording gage above and below former intake structure 0.2 mi (0.3 km) upstream, at different datums.

REMARKS.--Records good. Daily diversions computed on basis of head on intake gates and gate openings. Records published herein represent flow diverted from Colorado River for irrigation of 92,121 acres (373 $km^2$) during the 1977 calendar year. Return flows to Colorado River are measured by 11 wasteways and drains extending throughout the project; 5 of these are equipped with water stage recorder and Parshall flume, 3 are equipped with Sparling flowmeters. Return flows have not been subtracted; combined monthly return flows are given in table below.

AVERAGE DISCHARGE.--28 years (water years 1951-78), 1,209 $ft^3/s$ (34.24 $m^3/s$), 875,900 acre-ft/yr (1,080 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 2,230 $ft^3/s$ (63.2 $m^3/s$) July 20, 1977; no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 794 | 781 | 970 | 667 | 546 | 891 | 1920 | 1550 | 1720 | 1790 | 1820 | 1380 |
| 2 | 687 | 878 | 1020 | 27 | 522 | 854 | 1810 | 1580 | 1780 | 1930 | 1940 | 1360 |
| 3 | 789 | 953 | 946 | .00 | 549 | 712 | 1740 | 1580 | 1680 | 2000 | 1920 | 1220 |
| 4 | 827 | 983 | 795 | .00 | 569 | 610 | 1800 | 1560 | 1700 | 2040 | 1850 | 1230 |
| 5 | 713 | 1090 | 719 | .00 | 533 | 609 | 1800 | 1610 | 1650 | 2010 | 1880 | 1270 |
| 6 | 659 | 967 | 755 | .00 | 599 | 676 | 1920 | 1630 | 1710 | 1960 | 1790 | 1390 |
| 7 | 770 | 929 | 717 | .00 | 628 | 771 | 1980 | 1480 | 1800 | 2000 | 1550 | 1460 |
| 8 | 760 | 867 | 701 | .00 | 617 | 877 | 1880 | 1390 | 1720 | 2040 | 1740 | 1420 |
| 9 | 677 | 889 | 675 | 242 | 653 | 1030 | 1730 | 1490 | 1710 | 2050 | 1660 | 1350 |
| 10 | 751 | 874 | 639 | 385 | 661 | 1180 | 1830 | 1650 | 1950 | 2030 | 1790 | 1300 |
| 11 | 742 | 912 | 665 | 348 | 712 | 1180 | 1800 | 1770 | 1900 | 2040 | 1830 | 1200 |
| 12 | 766 | 859 | 764 | 322 | 782 | 1120 | 1810 | 1810 | 1850 | 1970 | 1650 | 1300 |
| 13 | 859 | 762 | 792 | 315 | 865 | 1320 | 1910 | 1520 | 1900 | 1970 | 1500 | 1390 |
| 14 | 968 | 903 | 827 | 308 | 959 | 1360 | 1890 | 1340 | 1870 | 1990 | 1530 | 1350 |
| 15 | 860 | 812 | 736 | 305 | 904 | 1350 | 1770 | 1540 | 1930 | 2030 | 1470 | 1300 |
| 16 | 795 | 863 | 768 | 314 | 793 | 1350 | 1780 | 1630 | 1940 | 1960 | 1440 | 1160 |
| 17 | 1070 | 892 | 780 | 302 | 911 | 1410 | 1970 | 1740 | 2000 | 2000 | 1480 | 1090 |
| 18 | 1020 | 885 | 670 | 305 | 1010 | 1530 | 1920 | 1760 | 1730 | 2000 | 1490 | 1080 |
| 19 | 881 | 743 | 800 | 304 | 1020 | 1540 | 1870 | 1690 | 1730 | 2000 | 1440 | 1150 |
| 20 | 788 | 673 | 784 | 331 | 1120 | 1510 | 1870 | 1120 | 1770 | 2060 | 1380 | 1060 |
| 21 | 817 | 866 | 723 | 370 | 1200 | 1540 | 2000 | 1270 | 1810 | 2110 | 1470 | 1110 |
| 22 | 835 | 836 | 687 | 366 | 1340 | 1670 | 1920 | 1700 | 1850 | 2130 | 1440 | 1070 |
| 23 | 802 | 730 | 685 | 387 | 1340 | 1710 | 1570 | 1810 | 1830 | 2090 | 1450 | 993 |
| 24 | 771 | 668 | 657 | 437 | 1480 | 1750 | 1820 | 1760 | 1770 | 1910 | 1500 | 988 |
| 25 | 765 | 747 | 528 | 518 | 1500 | 1590 | 1760 | 1660 | 1680 | 1820 | 1550 | 1080 |
| 26 | 828 | 776 | 637 | 579 | 1310 | 1440 | 1880 | 1580 | 1730 | 1900 | 1450 | 1040 |
| 27 | 924 | 723 | 585 | 661 | 1230 | 1620 | 1840 | 1450 | 1750 | 2010 | 1340 | 1030 |
| 28 | 1040 | 783 | 608 | 689 | 1110 | 1680 | 1740 | 1280 | 1810 | 2020 | 1300 | 1210 |
| 29 | 1120 | 867 | 713 | 623 | --- | 1870 | 1730 | 1370 | 1730 | 1950 | 1330 | 1290 |
| 30 | 866 | 921 | 680 | 628 | --- | 1790 | 1640 | 1520 | 1780 | 1890 | 1330 | 1130 |
| 31 | 830 | --- | 797 | 551 | --- | 1790 | --- | 1620 | --- | 1910 | 1410 | --- |
| TOTAL | 25774 | 25432 | 22823 | 10284.00 | 25463 | 40330 | 54900 | 48460 | 53780 | 61610 | 48720 | 36401 |
| MEAN | 831 | 848 | 736 | 332 | 909 | 1301 | 1830 | 1563 | 1793 | 1987 | 1572 | 1213 |
| MAX | 1120 | 1090 | 1020 | 689 | 1500 | 1870 | 2000 | 1810 | 2000 | 2130 | 1940 | 1460 |
| MIN | 659 | 668 | 528 | .00 | 522 | 609 | 1570 | 1120 | 1650 | 1790 | 1300 | 988 |
| AC-FT | 51120 | 50440 | 45270 | 20400 | 50510 | 79990 | 108900 | 96120 | 106700 | 122200 | 96640 | 72200 |
| (†) | 38170 | 35610 | 37710 | 30350 | 27940 | 35540 | 40360 | 45200 | 42770 | 44030 | 47890 | 41060 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1977 | TOTAL | 464983.00 | MEAN | 1274 | MAX | 2230 | MIN | 323 | AC-FT | 922300 | † 487200 |
| WTR YR 1978 | TOTAL | 453977.00 | MEAN | 1244 | MAX | 2130 | MIN | .00 | AC-FT | 900500 | † 466600 |

† Return flows, in acre-feet, to Colorado River.

09429000 PALO VERDE CANAL NEAR BLYTHE, CA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--March 1970 to current year.

REMARKS.--No flow Jan. 3-8.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 03... | 1130 | 773 | 1100 | 7.7 | 21.0 | 330 | 200 | 80 | 31 | 110 | 2.6 |
| 11... | 0730 | -- | 1150 | -- | 22.0 | -- | -- | -- | -- | -- | -- |
| 11... | 0815 | -- | 1150 | -- | 23.0 | -- | -- | -- | -- | -- | -- |
| 17... | 1310 | -- | 1090 | -- | 24.5 | -- | -- | -- | -- | -- | -- |
| 25... | 1110 | -- | 1150 | -- | 21.0 | -- | -- | -- | -- | -- | -- |
| 31... | 1115 | -- | 1120 | -- | 20.5 | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | | | | | | |
| 07... | 1125 | 1000 | 1140 | 7.7 | 19.0 | 350 | 210 | 87 | 31 | 120 | 2.8 |
| 14... | 0830 | -- | 1160 | -- | 19.0 | -- | -- | -- | -- | -- | -- |
| 21... | 0825 | -- | 1150 | -- | 18.5 | -- | -- | -- | -- | -- | -- |
| 28... | 0740 | -- | 1170 | -- | 17.0 | -- | -- | -- | -- | -- | -- |
| DEC | | | | | | | | | | | |
| 05... | 1405 | 728 | 1130 | 8.0 | 16.5 | 350 | 220 | 85 | 33 | 110 | 2.6 |
| 06... | 0700 | -- | 1210 | -- | 14.0 | -- | -- | -- | -- | -- | -- |
| 12... | 1100 | -- | 1110 | -- | 13.5 | -- | -- | -- | -- | -- | -- |
| 19... | 1030 | -- | 1160 | -- | 14.5 | -- | -- | -- | -- | -- | -- |
| 27... | 1110 | -- | 1110 | -- | 14.0 | -- | -- | -- | -- | -- | -- |
| JAN | | | | | | | | | | | |
| 09... | 0930 | 433 | 1180 | 7.7 | 13.0 | 380 | 240 | 95 | 34 | 110 | 2.5 |
| 16... | 1020 | -- | 1170 | -- | 13.5 | -- | -- | -- | -- | -- | -- |
| 23... | 1130 | -- | 1160 | -- | 13.5 | -- | -- | -- | -- | -- | -- |
| 30... | 1255 | -- | 1110 | -- | 14.0 | -- | -- | -- | -- | -- | -- |
| 31... | 0700 | -- | 1180 | -- | 13.0 | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | | | | | | |
| 06... | 1130 | 676 | 1180 | 8.0 | 14.0 | 360 | 220 | 88 | 33 | 120 | 2.8 |
| 13... | 0930 | -- | 1090 | -- | 13.5 | -- | -- | -- | -- | -- | -- |
| 21... | 1110 | -- | 1100 | -- | 13.0 | -- | -- | -- | -- | -- | -- |
| 27... | 1110 | -- | 1100 | -- | 14.0 | -- | -- | -- | -- | -- | -- |
| MAR | | | | | | | | | | | |
| 06... | 1250 | 684 | 1130 | 8.0 | 14.0 | 340 | 200 | 81 | 33 | 110 | 2.6 |
| 13... | 1400 | -- | 1090 | -- | 15.5 | -- | -- | -- | -- | -- | -- |
| 20... | 0900 | -- | 1090 | -- | 16.5 | -- | -- | -- | -- | -- | -- |
| 27... | 0930 | -- | 1090 | -- | 18.5 | -- | -- | -- | -- | -- | -- |
| APR | | | | | | | | | | | |
| 03... | 1145 | 1750 | 1090 | 7.8 | 18.0 | 340 | 210 | 85 | 31 | 100 | 2.4 |
| 10... | 0800 | -- | 1090 | -- | 17.0 | -- | -- | -- | -- | -- | -- |
| 17... | 0750 | -- | 1090 | -- | 18.5 | -- | -- | -- | -- | -- | -- |
| 24... | 0810 | -- | 1090 | -- | 18.5 | -- | -- | -- | -- | -- | -- |
| MAY | | | | | | | | | | | |
| 01... | 1030 | 1500 | 1110 | 7.7 | 19.0 | 340 | 200 | 85 | 32 | 100 | 2.3 |
| 02... | 0700 | -- | 1100 | -- | 19.0 | -- | -- | -- | -- | -- | -- |
| 08... | 1135 | -- | 1100 | -- | 20.5 | -- | -- | -- | -- | -- | -- |
| 15... | 1120 | -- | 1100 | -- | 22.0 | -- | -- | -- | -- | -- | -- |
| 22... | 0730 | -- | 1110 | -- | 20.0 | -- | -- | -- | -- | -- | -- |
| 30... | 0710 | -- | 1110 | -- | 23.5 | -- | -- | -- | -- | -- | -- |
| JUN | | | | | | | | | | | |
| 05... | 1150 | 1760 | 1100 | 7.6 | 19.5 | 340 | 200 | 84 | 31 | 110 | 2.6 |
| 12... | 1055 | -- | 1100 | -- | 24.0 | -- | -- | -- | -- | -- | -- |
| 19... | 1030 | -- | 1110 | -- | 24.5 | -- | -- | -- | -- | -- | -- |
| 26... | 0745 | -- | 1110 | -- | 24.5 | -- | -- | -- | -- | -- | -- |
| 27... | 0730 | -- | 1200 | -- | 24.0 | -- | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | | | |
| 03... | 1420 | 2040 | 1100 | 7.9 | 25.5 | 330 | 180 | 83 | 30 | 100 | 2.4 |
| 10... | 1115 | -- | 1090 | -- | 26.0 | -- | -- | -- | -- | -- | -- |
| 17... | 0735 | -- | 1090 | -- | 25.5 | -- | -- | -- | -- | -- | -- |
| 24... | 1110 | -- | 1200 | -- | 27.0 | -- | -- | -- | -- | -- | -- |
| 31... | 1210 | -- | 1080 | -- | 28.0 | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | | | |
| 07... | 0945 | 1590 | 1090 | 7.8 | 28.0 | 320 | 200 | 80 | 29 | 110 | 2.7 |
| 14... | 0800 | -- | 1090 | -- | 25.5 | -- | -- | -- | -- | -- | -- |
| 21... | 0735 | -- | 1100 | -- | 26.0 | -- | -- | -- | -- | -- | -- |
| 25... | 0745 | -- | 1100 | -- | 24.5 | -- | -- | -- | -- | -- | -- |
| SEP | | | | | | | | | | | |
| 05... | 1425 | 1340 | 1120 | 7.8 | 25.5 | 340 | 210 | 82 | 32 | 110 | 2.6 |
| 11... | 1135 | -- | 1100 | -- | 24.5 | -- | -- | -- | -- | -- | -- |
| 18... | 1405 | -- | 1100 | -- | 22.0 | -- | -- | -- | -- | -- | -- |
| 25... | 1420 | -- | 1100 | -- | 23.5 | -- | -- | -- | -- | -- | -- |

09429000 PALO VERDE CANAL NEAR BLYTHE, CA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | POTASSIUM, DISSOLVED (MG/L AS K) | BICARBONATE (MG/L AS HCO3) | CARBONATE (MG/L AS CO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | SOLIDS, DISSOLVED (TONS PER AC-FT) | NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 03... | 4.9 | 150 | 0 | 310 | 93 | .4 | 8.9 | 704 | 712 | .96 | -- |
| 11... | -- | -- | -- | -- | -- | -- | -- | 736 | -- | 1.00 | -- |
| 17... | -- | -- | -- | -- | -- | -- | -- | 696 | -- | .95 | -- |
| 25... | -- | -- | -- | -- | -- | -- | -- | 734 | -- | 1.00 | -- |
| 31... | -- | -- | -- | -- | -- | -- | -- | 714 | -- | .97 | -- |
| NOV | | | | | | | | | | | |
| 07... | 5.4 | 160 | 0 | 320 | 96 | .4 | 9.7 | 732 | 749 | 1.00 | -- |
| 14... | -- | -- | -- | -- | -- | -- | -- | 740 | -- | 1.01 | -- |
| 21... | -- | -- | -- | -- | -- | -- | -- | 738 | -- | 1.00 | -- |
| 28... | -- | -- | -- | -- | -- | -- | -- | 748 | -- | 1.02 | -- |
| DEC | | | | | | | | | | | |
| 05... | 5.0 | 160 | 0 | 320 | 98 | .4 | 8.8 | 722 | 739 | .98 | -- |
| 06... | 5.2 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 12... | -- | -- | -- | -- | -- | -- | -- | 708 | -- | .96 | -- |
| 19... | -- | -- | -- | -- | -- | -- | -- | 736 | -- | 1.00 | -- |
| 27... | -- | -- | -- | -- | -- | -- | -- | 708 | -- | .96 | -- |
| JAN | | | | | | | | | | | |
| 09... | 5.0 | 170 | 0 | 330 | 100 | .4 | 8.8 | 754 | 767 | 1.03 | -- |
| 16... | -- | -- | -- | -- | -- | -- | -- | 752 | -- | 1.02 | -- |
| 23... | -- | -- | -- | -- | -- | -- | -- | 742 | -- | 1.01 | -- |
| 30... | -- | -- | -- | -- | -- | -- | -- | 708 | -- | .96 | -- |
| 31... | 5.1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | | | | | | |
| 06... | 4.7 | 170 | 0 | 300 | 110 | .4 | 9.5 | 756 | 750 | 1.03 | -- |
| 13... | -- | -- | -- | -- | -- | -- | -- | 698 | -- | .95 | -- |
| 21... | -- | -- | -- | -- | -- | -- | -- | 704 | -- | .96 | -- |
| 27... | -- | -- | -- | -- | -- | -- | -- | 706 | -- | .96 | -- |
| MAR | | | | | | | | | | | |
| 06... | 4.9 | 170 | 0 | 300 | 90 | .3 | 7.7 | 724 | 711 | .98 | -- |
| 13... | -- | -- | -- | -- | -- | -- | -- | 698 | -- | .95 | -- |
| 20... | -- | -- | -- | -- | -- | -- | -- | 696 | -- | .95 | -- |
| 27... | -- | -- | -- | -- | -- | -- | -- | 700 | -- | .95 | -- |
| APR | | | | | | | | | | | |
| 03... | 5.0 | 160 | 0 | 290 | 91 | .4 | 9.2 | 698 | 691 | .95 | -- |
| 10... | -- | -- | -- | -- | -- | -- | -- | 694 | -- | .94 | -- |
| 17... | -- | -- | -- | -- | -- | -- | -- | 696 | -- | .95 | -- |
| 24... | -- | -- | -- | -- | -- | -- | -- | 698 | -- | .95 | -- |
| MAY | | | | | | | | | | | |
| 01... | 5.2 | 170 | 0 | 310 | 93 | .4 | 9.1 | 710 | 719 | .97 | -- |
| 02... | 5.3 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 08... | -- | -- | -- | -- | -- | -- | -- | 700 | -- | .95 | -- |
| 15... | -- | -- | -- | -- | -- | -- | -- | 702 | -- | .95 | -- |
| 22... | -- | -- | -- | -- | -- | -- | -- | 712 | -- | .97 | -- |
| 30... | -- | -- | -- | -- | -- | -- | -- | 702 | -- | .95 | -- |
| JUN | | | | | | | | | | | |
| 05... | 5.4 | 170 | 0 | 280 | 96 | .4 | 9.5 | 700 | 700 | .95 | -- |
| 12... | -- | -- | -- | -- | -- | -- | -- | 696 | -- | .95 | -- |
| 19... | -- | -- | -- | -- | -- | -- | -- | 704 | -- | .96 | -- |
| 26... | -- | -- | -- | -- | -- | -- | -- | 706 | -- | .96 | -- |
| 27... | 5.2 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | | | |
| 03... | 4.8 | 180 | 0 | 280 | 90 | .3 | 9.0 | 696 | 686 | .95 | .09 |
| 10... | -- | -- | -- | -- | -- | -- | -- | 692 | -- | .94 | -- |
| 17... | -- | -- | -- | -- | -- | -- | -- | 690 | -- | .94 | -- |
| 24... | -- | -- | -- | -- | -- | -- | -- | 758 | -- | 1.03 | -- |
| 31... | -- | -- | -- | -- | -- | -- | -- | 684 | -- | .93 | -- |
| AUG | | | | | | | | | | | |
| 07... | 5.0 | 150 | 0 | 300 | 95 | .3 | 9.0 | 692 | 703 | .94 | .23 |
| 14... | -- | -- | -- | -- | -- | -- | -- | 698 | -- | .95 | -- |
| 21... | -- | -- | -- | -- | -- | -- | -- | 702 | -- | .95 | -- |
| 25... | -- | -- | -- | -- | -- | -- | -- | 696 | -- | .95 | -- |
| SEP | | | | | | | | | | | |
| 05... | 4.9 | 160 | 0 | 300 | 100 | .5 | 8.7 | 710 | 722 | .97 | 1.0 |
| 11... | -- | -- | -- | -- | -- | -- | -- | 696 | -- | .95 | -- |
| 18... | -- | -- | -- | -- | -- | -- | -- | 700 | -- | .95 | -- |
| 25... | -- | -- | -- | -- | -- | -- | -- | 700 | -- | .95 | -- |

09429000 PALO VERDE CANAL NEAR BLYTHE, CA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | BORON, DIS-SOLVED (UG/L AS B) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) | IRON, DIS-SOLVED (UG/L AS FE) | MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) | ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) |
|---|---|---|---|---|---|
| OCT | | | | | |
| 03... | 140 | -- | 20 | -- | -- |
| 11... | -- | <10 | -- | .0 | 10 |
| NOV | | | | | |
| 07... | 160 | -- | 10 | -- | -- |
| DEC | | | | | |
| 05... | 150 | -- | 10 | -- | -- |
| 06... | -- | 8 | -- | .0 | 10 |
| JAN | | | | | |
| 09... | 150 | -- | 10 | -- | -- |
| 31... | -- | 9 | -- | .0 | 20 |
| FEB | | | | | |
| 06... | 150 | -- | 0 | -- | -- |
| MAR | | | | | |
| 06... | 150 | -- | 10 | -- | -- |
| APR | | | | | |
| 03... | 150 | -- | 0 | -- | -- |
| MAY | | | | | |
| 01... | 140 | -- | 10 | -- | -- |
| 02... | -- | 3 | -- | .0 | 20 |
| JUN | | | | | |
| 05... | 140 | -- | 40 | -- | -- |
| 27... | -- | 6 | -- | .0 | 20 |
| JUL | | | | | |
| 03... | 160 | -- | 20 | -- | -- |
| AUG | | | | | |
| 07... | 150 | -- | 10 | -- | -- |
| SEP | | | | | |
| 05... | 160 | -- | 10 | -- | -- |

< Actual value is known to be less than value shown.

09429000 PALO VERDE CANAL NEAR BLYTHE, CA--Continued

PESTICIDE ANALYSES, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | PCB, TOTAL (UG/L) | NAPHTHALENES, POLYCHLOR. TOTAL (UG/L) | ALDRIN, TOTAL (UG/L) | ATRAZINE, TOTAL (UG/L) | CHLORDANE, TOTAL (UG/L) | DDD, TOTAL (UG/L) | DDE, TOTAL (UG/L) | DDT, TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 11... | 0730 | .0 | .00 | .00 | -- | .0 | .00 | .00 | .00 |
| DEC | | | | | | | | | |
| 06... | 0700 | .0 | .00 | .00 | .00 | .0 | .00 | .00 | .00 |
| JAN | | | | | | | | | |
| 31... | 0700 | .0 | .00 | .00 | .00 | .0 | .00 | .00 | .00 |
| MAY | | | | | | | | | |
| 02... | 0700 | .0 | .00 | .00 | .00 | .0 | .00 | .00 | .00 |
| JUN | | | | | | | | | |
| 27... | 0730 | .0 | .00 | .00 | .00 | .0 | .00 | .00 | .00 |

| DATE | DIAZINON, TOTAL (UG/L) | DIELDRIN TOTAL (UG/L) | ENDOSULFAN, TOTAL (UG/L) | ENDRIN, TOTAL (UG/L) | ETHION, TOTAL (UG/L) | HEPTACHLOR, TOTAL (UG/L) | HEPTACHLOR EPOXIDE TOTAL (UG/L) | LINDANE TOTAL (UG/L) | MALATHION, TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 11... | .01 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| DEC | | | | | | | | | |
| 06... | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| JAN | | | | | | | | | |
| 31... | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| MAY | | | | | | | | | |
| 02... | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| JUN | | | | | | | | | |
| 27... | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |

| DATE | METHYL PARATHION, TOTAL (UG/L) | METHYL TRITHION, TOTAL (UG/L) | PARATHION, TOTAL (UG/L) | TOXAPHENE, TOTAL (UG/L) | TOTAL TRITHION (UG/L) | 2,4-D, TOTAL (UG/L) | 2,4,5-T TOTAL (UG/L) | SILVEX, TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 11... | .00 | .00 | .00 | 0 | .00 | .00 | .00 | .00 |
| DEC | | | | | | | | |
| 06... | .00 | .00 | .00 | 0 | .00 | .00 | .00 | .00 |
| JAN | | | | | | | | |
| 31... | .00 | .00 | .00 | 0 | .00 | .00 | .00 | .00 |
| MAY | | | | | | | | |
| 02... | .00 | .00 | .00 | 0 | .00 | .00 | .00 | .00 |
| JUN | | | | | | | | |
| 27... | .00 | .00 | .00 | 0 | .00 | .00 | .00 | .00 |

## 09429010 COLORADO RIVER AT PALO VERDE DAM, AZ-CA

LOCATION.--Lat 33°43'55", long 114°30'40", in NW¼NE¼ sec.19, T.5 S., R.24 E., San Bernardino meridian, in California, Riverside County, Hydrologic Unit 15030104, on west side of Palo Verde Diversion Dam, 10 mi (16 km) northeast of Blythe, Calif., and 44 mi (71 km) downstream from Headgate Rock Dam.

DRAINAGE AREA.--186,200 $mi^2$ (482,300 $km^2$), approximately, including 3,959 $mi^2$ (10,254 $km^2$) in Great Divide basin in southern Wyoming, which is noncontributing (previously considered part of the Missouri River basin).

PERIOD OF RECORD.--April 1969 to current year. If records (available in files of Tucson District office) for the two Colorado River Indian Reservation drains entering below Palo Verde Dam are added to records for this station, records equivalent to those published 1956-69 as "Colorado River below Palo Verde Dam" can be obtained.

GAGE.--Two water-stage recorders, one above and one below dam, to record head on gates, and water-stage recorder to record gate opening. Supplementary water-stage recorder above dam operated by Geological Survey and supplementary water-stage recorder below dam operated by Palo Verde Irrigation District. Datum of gages is National Geodetic Vertical Datum of 1929.

REMARKS.--Records good prior to March and excellent thereafter. Record does not include diversion to Palo Verde Canal. (See elsewhere in this report.) Daily discharge computed from relation between discharge, head, and gate openings. Many diversions above station for irrigation, municipal, and industrial uses. Flow regulated by Lake Mead, Lake Mohave, and Lake Havasu.

AVERAGE DISCHARGE.--9 years, 7,300 $ft^3/s$ (206.7 $m^3/s$), 5,289,000 acre-ft/yr (6,520 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 13,300 $ft^3/s$ (377 $m^3/s$) July 31, 1977; minimum daily, 1,060 $ft^3/s$ (30.0 $m^3/s$) Nov. 25, 1972.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 12,400 $ft^3/s$ (351 $m^3/s$) Apr. 17; minimum daily, 1,270 $ft^3/s$ (36.0 $m^3/s$) Jan. 26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 4850 | 5060 | 4520 | 1560 | 1520 | 3670 | 10900 | 9160 | 8670 | 10900 | 10900 | 6420 |
| 2 | 5300 | 4050 | 4380 | 2500 | 1630 | 3520 | 12200 | 8250 | 6560 | 11000 | 10400 | 7210 |
| 3 | 5480 | 3650 | 4820 | 1800 | 1540 | 3440 | 11900 | 8240 | 8240 | 11800 | 9900 | 7860 |
| 4 | 5450 | 2840 | 5010 | 1700 | 2190 | 3360 | 11300 | 7280 | 8880 | 11500 | 10100 | 8030 |
| 5 | 5260 | 3390 | 5390 | 1900 | 2840 | 3500 | 10600 | 6500 | 9050 | 10200 | 10600 | 6660 |
| 6 | 5270 | 3830 | 4830 | 1800 | 2460 | 3370 | 9870 | 8150 | 9480 | 9850 | 11500 | 6300 |
| 7 | 2390 | 4520 | 4640 | 2200 | 4000 | 5790 | 9620 | 8660 | 8210 | 9800 | 11700 | 7080 |
| 8 | 2320 | 4590 | 4050 | 2000 | 3290 | 6300 | 11000 | 9080 | 7770 | 11300 | 11400 | 6900 |
| 9 | 3790 | 4540 | 4090 | 2010 | 3560 | 7170 | 11700 | 8540 | 6930 | 11500 | 11100 | 8020 |
| 10 | 3750 | 3780 | 4390 | 2340 | 3610 | 7420 | 11500 | 7310 | 8540 | 11200 | 10500 | 8630 |
| 11 | 4050 | 3380 | 4900 | 2210 | 4530 | 8880 | 11400 | 6610 | 9240 | 11500 | 10600 | 8510 |
| 12 | 3810 | 4560 | 4910 | 2150 | 5530 | 9560 | 10700 | 6690 | 9640 | 11200 | 10800 | 8370 |
| 13 | 3540 | 4890 | 4900 | 2040 | 7270 | 9380 | 9820 | 7610 | 9130 | 10700 | 11100 | 7060 |
| 14 | 3030 | 4540 | 5040 | 1940 | 5170 | 8500 | 10000 | 8730 | 9670 | 10000 | 9280 | 7060 |
| 15 | 4320 | 4130 | 4790 | 1930 | 7110 | 9950 | 11300 | 9730 | 8700 | 10900 | 10100 | 6190 |
| 16 | 5150 | 3280 | 4100 | 1880 | 6230 | 9430 | 12100 | 9240 | 8800 | 11400 | 9870 | 7250 |
| 17 | 5040 | 2830 | 5200 | 1860 | 5800 | 10200 | 12400 | 8630 | 9740 | 11600 | 9470 | 7470 |
| 18 | 5180 | 2700 | 5760 | 1790 | 8690 | 11400 | 12200 | 9690 | 9860 | 11300 | 8460 | 7200 |
| 19 | 5180 | 4130 | 5550 | 1730 | 8460 | 11400 | 11700 | 8280 | 10700 | 11200 | 8960 | 7340 |
| 20 | 4920 | 4900 | 4870 | 1700 | 8400 | 11400 | 11100 | 9980 | 11000 | 10900 | 9810 | 7140 |
| 21 | 3690 | 4560 | 4190 | 1660 | 8680 | 11400 | 10700 | 9830 | 10100 | 11100 | 9810 | 6110 |
| 22 | 5010 | 4100 | 2830 | 1650 | 8680 | 10600 | 11400 | 9610 | 8910 | 11500 | 9380 | 5530 |
| 23 | 4850 | 4390 | 1650 | 1620 | 8100 | 10300 | 12300 | 8720 | 8810 | 12000 | 8780 | 6440 |
| 24 | 4990 | 3030 | 3950 | 1540 | 8700 | 10900 | 11900 | 7620 | 10700 | 12000 | 8130 | 8100 |
| 25 | 4740 | 2420 | 4990 | 1410 | 9950 | 10100 | 11300 | 6690 | 11700 | 10200 | 7900 | 8080 |
| 26 | 4470 | 2760 | 5930 | 1270 | 9390 | 10200 | 9530 | 6410 | 11100 | 10400 | 8960 | 7960 |
| 27 | 4210 | 2680 | 3170 | 2420 | 8280 | 11000 | 8660 | 7600 | 11000 | 9410 | 8820 | 7550 |
| 28 | 3760 | 2860 | 1740 | 2880 | 7900 | 10900 | 9060 | 9060 | 10400 | 9740 | 8990 | 6690 |
| 29 | 4330 | 2990 | 1470 | 3340 | --- | 11200 | 9750 | 8930 | 10400 | 10400 | 8580 | 5620 |
| 30 | 4830 | 3560 | 1410 | 3240 | --- | 11100 | 9590 | 9530 | 10500 | 11200 | 7680 | 6060 |
| 31 | 4880 | --- | 1440 | 2270 | --- | 11000 | --- | 8950 | --- | 11000 | 7320 | --- |
| TOTAL | 137840 | 112940 | 128910 | 62340 | 163510 | 266340 | 327500 | 259310 | 282430 | 338700 | 300900 | 214840 |
| MEAN | 4446 | 3765 | 4158 | 2011 | 5840 | 8592 | 10920 | 8365 | 9414 | 10930 | 9706 | 7161 |
| MAX | 5480 | 5060 | 5930 | 3340 | 9950 | 11400 | 12400 | 9980 | 11700 | 12000 | 11700 | 8630 |
| MIN | 2320 | 2420 | 1410 | 1270 | 1520 | 3360 | 8660 | 6410 | 6560 | 9410 | 7320 | 5530 |
| AC-FT | 273400 | 224000 | 255700 | 123700 | 324300 | 528300 | 649600 | 514300 | 560200 | 671800 | 596800 | 426100 |

CAL YR 1977 TOTAL 2579330 MEAN 7067 MAX 13300 MIN 1350 AC-FT 5116000
WTR YR 1978 TOTAL 2595560 MEAN 7111 MAX 12400 MIN 1270 AC-FT 5148000

## 09429030 PALO VERDE DRAIN NEAR PARKER, AZ

LOCATION.--Lat 33°45'25", long 114°29'48", in NE¼SW¼ sec.24, T.5 N., R.22 W., Yuma County, Hydrologic Unit 15030104, at bridge, 0.5 mi (0.8 km) above mouth, 0.5 mi (0.8 km) northeast of Palo Verde Dam, 9 mi (14 km) north of Ehrenberg, and 31 mi (50 km) southwest of Parker.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 03... | 1110 | 33 | 1990 | 7.8 | 23.5 | 600 | 390 | 160 | 49 | 240 | 4.3 | 4.9 |
| 11... | 0835 | -- | 1920 | -- | 21.0 | -- | -- | -- | -- | -- | -- | -- |
| 17... | 1245 | -- | 1930 | -- | 21.5 | -- | -- | -- | -- | -- | -- | -- |
| 25... | 1045 | -- | 1970 | -- | 20.0 | -- | -- | -- | -- | -- | -- | -- |
| 31... | 1050 | -- | 2010 | -- | 20.5 | -- | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | | | | | | | |
| 07... | 1135 | 26 | 1960 | 8.0 | 20.5 | 620 | 430 | 160 | 53 | 210 | 3.7 | 5.2 |
| 14... | 0845 | -- | 1850 | -- | 18.5 | -- | -- | -- | -- | -- | -- | -- |
| 21... | 0840 | -- | 1940 | -- | 18.0 | -- | -- | -- | -- | -- | -- | -- |
| 28... | 0750 | -- | 1940 | -- | 19.0 | -- | -- | -- | -- | -- | -- | -- |
| DEC | | | | | | | | | | | | |
| 05... | 1345 | 27 | 1940 | 8.0 | 19.0 | 610 | 470 | 160 | 51 | 210 | 3.7 | 4.7 |
| 12... | 1345 | -- | 1920 | -- | 15.0 | -- | -- | -- | -- | -- | -- | -- |
| 19... | 1045 | -- | 1900 | -- | 13.5 | -- | -- | -- | -- | -- | -- | -- |
| 27... | 1125 | -- | 1890 | -- | 15.0 | -- | -- | -- | -- | -- | -- | -- |
| JAN | | | | | | | | | | | | |
| 03... | 1405 | 30 | 1940 | 7.7 | 13.5 | 610 | 390 | 180 | 52 | 210 | 3.7 | 4.8 |
| 09... | 0740 | -- | 1950 | -- | 14.5 | -- | -- | -- | -- | -- | -- | -- |
| 16... | 1030 | -- | 1940 | -- | 16.0 | -- | -- | -- | -- | -- | -- | -- |
| 23... | 1140 | -- | 1930 | -- | 13.0 | -- | -- | -- | -- | -- | -- | -- |
| 30... | 1225 | -- | 1910 | -- | 14.5 | -- | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | | | | | | | |
| 13... | 0915 | -- | 1890 | -- | 15.0 | -- | -- | -- | -- | -- | -- | -- |
| 21... | 1055 | -- | 1920 | -- | 13.5 | -- | -- | -- | -- | -- | -- | -- |
| 27... | 1120 | -- | 1910 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MAR | | | | | | | | | | | | |
| 06... | 1230 | 31 | 1870 | 7.8 | 16.0 | 560 | 350 | 140 | 51 | 210 | 3.9 | 5.0 |
| 13... | 1330 | -- | 1850 | -- | 18.5 | -- | -- | -- | -- | -- | -- | -- |
| 20... | 1010 | -- | 1870 | -- | 18.0 | -- | -- | -- | -- | -- | -- | -- |
| 27... | 1350 | -- | 1920 | -- | 18.0 | -- | -- | -- | -- | -- | -- | -- |
| APR | | | | | | | | | | | | |
| 03... | 1205 | 39 | 2050 | 7.7 | 21.0 | 630 | 410 | 160 | 57 | 230 | 4.0 | 5.7 |
| 10... | 0825 | -- | 1930 | -- | 16.0 | -- | -- | -- | -- | -- | -- | -- |
| 17... | 0800 | -- | 2050 | -- | 16.5 | -- | -- | -- | -- | -- | -- | -- |
| 24... | 0825 | -- | 2150 | -- | 17.0 | -- | -- | -- | -- | -- | -- | -- |
| MAY | | | | | | | | | | | | |
| 01... | 1045 | 59 | 2230 | 7.4 | 19.5 | 670 | 430 | 170 | 60 | 250 | 4.2 | 5.8 |
| 08... | 1120 | -- | 2190 | -- | 19.5 | -- | -- | -- | -- | -- | -- | -- |
| 15... | 1110 | -- | 2060 | -- | 20.0 | -- | -- | -- | -- | -- | -- | -- |
| 22... | 0740 | -- | 2000 | -- | 20.5 | -- | -- | -- | -- | -- | -- | -- |
| 30... | 0735 | -- | 2050 | -- | 21.5 | -- | -- | -- | -- | -- | -- | -- |
| JUN | | | | | | | | | | | | |
| 05... | 1130 | 52 | 2030 | 7.8 | 20.0 | 620 | 380 | 160 | 54 | 230 | 4.0 | 5.3 |
| 12... | 1040 | -- | 2150 | -- | 23.0 | -- | -- | -- | -- | -- | -- | -- |
| 19... | 1020 | -- | 2050 | -- | 21.0 | -- | -- | -- | -- | -- | -- | -- |
| 26... | 0800 | -- | 1980 | -- | 21.5 | -- | -- | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | | | | |
| 03... | 1400 | 51 | 2010 | 7.9 | 24.5 | 590 | 390 | 160 | 47 | 220 | 3.9 | 5.3 |
| 10... | 1055 | -- | 1880 | -- | 24.0 | -- | -- | -- | -- | -- | -- | -- |
| 17... | 0740 | -- | 1890 | -- | 25.0 | -- | -- | -- | -- | -- | -- | -- |
| 24... | 1120 | -- | 1910 | -- | 25.5 | -- | -- | -- | -- | -- | -- | -- |
| 31... | 1200 | -- | 1940 | -- | 25.5 | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | | | | |
| 07... | 1005 | 46 | 2000 | 7.7 | 26.0 | 610 | 400 | 160 | 51 | 220 | 3.9 | 5.5 |
| 14... | 0820 | -- | 1940 | -- | 23.5 | -- | -- | -- | -- | -- | -- | -- |
| 21... | 0750 | -- | 1900 | -- | 24.5 | -- | -- | -- | -- | -- | -- | -- |
| 28... | 0800 | -- | 1900 | -- | 22.0 | -- | -- | -- | -- | -- | -- | -- |
| SEP | | | | | | | | | | | | |
| 05... | 1405 | 39 | 1950 | 8.0 | 25.0 | 570 | 380 | 150 | 48 | 220 | 4.0 | 5.1 |
| 11... | 1145 | -- | 1830 | -- | 23.5 | -- | -- | -- | -- | -- | -- | -- |
| 18... | 1345 | -- | 1830 | -- | 21.5 | -- | -- | -- | -- | -- | -- | -- |
| 25... | 1410 | -- | 1810 | -- | 24.0 | -- | -- | -- | -- | -- | -- | -- |

09429030 PALO VERDE DRAIN NEAR PARKER, AZ--Continued

PERIOD OF RECORD.--October 1968 to current year.

REMARKS.--Unpublished miscellaneous chemical analyses for water years 1962-68 available from district office in Tucson, Ariz. Formerly published as 09429030 - C.R.I.R. Levee Drain near Parker, AZ.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | BICARBONATE (MG/L AS HCO3) | CARBONATE (MG/L AS CO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | SOLIDS, DISSOLVED (TONS PER AC-FT) | BORON, DISSOLVED (UG/L AS B) | IRON, DISSOLVED (UG/L AS FE) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 03... | 260 | 0 | 530 | 220 | .4 | 21 | 1360 | 1350 | 1.85 | 220 | 20 |
| 11... | -- | -- | -- | -- | -- | -- | 1300 | -- | 1.77 | -- | -- |
| 17... | -- | -- | -- | -- | -- | -- | 1320 | -- | 1.80 | -- | -- |
| 25... | -- | -- | -- | -- | -- | -- | 1320 | -- | 1.80 | -- | -- |
| 31... | -- | -- | -- | -- | -- | -- | 1350 | -- | 1.84 | -- | -- |
| NOV | | | | | | | | | | | |
| 07... | 230 | 0 | 540 | 210 | .2 | 22 | 1340 | 1310 | 1.82 | 220 | 20 |
| 14... | -- | -- | -- | -- | -- | -- | 1260 | -- | 1.71 | -- | -- |
| 21... | -- | -- | -- | -- | -- | -- | 1320 | -- | 1.80 | -- | -- |
| 28... | -- | -- | -- | -- | -- | -- | 1320 | -- | 1.80 | -- | -- |
| DEC | | | | | | | | | | | |
| 05... | 170 | 0 | 550 | 210 | .5 | 22 | 1330 | 1290 | 1.81 | 230 | 30 |
| 12... | -- | -- | -- | -- | -- | -- | 1320 | -- | 1.80 | -- | -- |
| 19... | -- | -- | -- | -- | -- | -- | 1280 | -- | 1.74 | -- | -- |
| 27... | -- | -- | -- | -- | -- | -- | 1290 | -- | 1.75 | -- | -- |
| JAN | | | | | | | | | | | |
| 03... | 270 | 0 | 550 | 210 | .4 | 22 | 1330 | 1340 | 1.81 | 220 | 10 |
| 09... | -- | -- | -- | -- | -- | -- | 1320 | -- | 1.80 | -- | -- |
| 16... | -- | -- | -- | -- | -- | -- | 1320 | -- | 1.80 | -- | -- |
| 23... | -- | -- | -- | -- | -- | -- | 1310 | -- | 1.78 | -- | -- |
| 30... | -- | -- | -- | -- | -- | -- | 1300 | -- | 1.77 | -- | -- |
| FEB | | | | | | | | | | | |
| 13... | -- | -- | -- | -- | -- | -- | 1300 | -- | 1.77 | -- | -- |
| 21... | -- | -- | -- | -- | -- | -- | 1280 | -- | 1.74 | -- | -- |
| 27... | -- | -- | -- | -- | -- | -- | 1310 | -- | 1.78 | -- | -- |
| MAR | | | | | | | | | | | |
| 06... | 250 | 0 | 500 | 190 | .3 | 18 | 1270 | 1240 | 1.73 | 220 | 10 |
| 13... | -- | -- | -- | -- | -- | -- | 1240 | -- | 1.69 | -- | -- |
| 20... | -- | -- | -- | -- | -- | -- | 1230 | -- | 1.67 | -- | -- |
| 27... | -- | -- | -- | -- | -- | -- | 1320 | -- | 1.80 | -- | -- |
| APR | | | | | | | | | | | |
| 03... | 270 | 0 | 530 | 230 | .4 | 20 | 1410 | 1370 | 1.92 | 230 | 10 |
| 10... | -- | -- | -- | -- | -- | -- | 1320 | -- | 1.80 | -- | -- |
| 17... | -- | -- | -- | -- | -- | -- | 1400 | -- | 1.90 | -- | -- |
| 24... | -- | -- | -- | -- | -- | -- | 1470 | -- | 2.00 | -- | -- |
| MAY | | | | | | | | | | | |
| 01... | 290 | 0 | 610 | 250 | .4 | 20 | 1540 | 1510 | 2.09 | 240 | 10 |
| 08... | -- | -- | -- | -- | -- | -- | 1500 | -- | 2.04 | -- | -- |
| 15... | -- | -- | -- | -- | -- | -- | 1420 | -- | 1.93 | -- | -- |
| 22... | -- | -- | -- | -- | -- | -- | 1350 | -- | 1.84 | -- | -- |
| 30... | -- | -- | -- | -- | -- | -- | 1390 | -- | 1.89 | -- | -- |
| JUN | | | | | | | | | | | |
| 05... | 290 | 0 | 540 | 230 | .4 | 20 | 1350 | 1380 | 1.84 | 220 | 20 |
| 12... | -- | -- | -- | -- | -- | -- | 1420 | -- | 1.93 | -- | -- |
| 19... | -- | -- | -- | -- | -- | -- | 1390 | -- | 1.89 | -- | -- |
| 26... | -- | -- | -- | -- | -- | -- | 1330 | -- | 1.81 | -- | -- |
| JUL | | | | | | | | | | | |
| 03... | 250 | 0 | 540 | 220 | .3 | 20 | 1360 | 1340 | 1.85 | 230 | 60 |
| 10... | -- | -- | -- | -- | -- | -- | 1280 | -- | 1.74 | -- | -- |
| 17... | -- | -- | -- | -- | -- | -- | 1270 | -- | 1.73 | -- | -- |
| 24... | -- | -- | -- | -- | -- | -- | 1300 | -- | 1.77 | -- | -- |
| 31... | -- | -- | -- | -- | -- | -- | 1310 | -- | 1.78 | -- | -- |
| AUG | | | | | | | | | | | |
| 07... | 260 | 0 | 550 | 220 | .4 | 22 | 1370 | 1360 | 1.86 | 240 | 10 |
| 14... | -- | -- | -- | -- | -- | -- | 1310 | -- | 1.78 | -- | -- |
| 21... | -- | -- | -- | -- | -- | -- | 1290 | -- | 1.75 | -- | -- |
| 28... | -- | -- | -- | -- | -- | -- | 1260 | -- | 1.71 | -- | -- |
| SEP | | | | | | | | | | | |
| 05... | 230 | 0 | 220 | 210 | .5 | 20 | 1300 | 988 | 1.77 | 240 | 20 |
| 11... | -- | -- | -- | -- | -- | -- | 1250 | -- | 1.70 | -- | -- |
| 18... | -- | -- | -- | -- | -- | -- | 1230 | -- | 1.67 | -- | -- |
| 25... | -- | -- | -- | -- | -- | -- | 1210 | -- | 1.65 | -- | -- |

## 09429060 COLORADO RIVER INDIAN RESERVATION LOWER MAIN DRAIN NEAR PARKER, AZ

LOCATION.--Lat 33°45'40", long 114°29'05", in SW¼NW¼ sec.19, T.5 N., R.21 W., Yuma County, Hydrologic Unit 15030104, at gaging station, 2.8 mi (4.5 km) above outlet to Colorado River, and 31 mi (50 km) south of Parker.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 03... | 1120 | 211 | 2230 | 7.6 | 23.0 | 570 | 380 | 140 | 54 | 270 | 4.9 | 5.9 |
| 11... | 0830 | -- | 2640 | -- | 23.5 | -- | -- | -- | -- | -- | -- | -- |
| 17... | 1255 | -- | 2680 | -- | 23.5 | -- | -- | -- | -- | -- | -- | -- |
| 25... | 1050 | -- | 2130 | -- | 22.0 | -- | -- | -- | -- | -- | -- | -- |
| 31... | 1100 | -- | 2100 | -- | 21.0 | -- | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | | | | | | | |
| 07... | 1145 | 175 | 2130 | 7.9 | 21.5 | 590 | 380 | 150 | 52 | 260 | 4.7 | 6.2 |
| 14... | 0855 | -- | 2370 | -- | 19.5 | -- | -- | -- | -- | -- | -- | -- |
| 21... | 0850 | -- | 2280 | -- | 19.0 | -- | -- | -- | -- | -- | -- | -- |
| 28... | 0800 | -- | 2500 | -- | 18.5 | -- | -- | -- | -- | -- | -- | -- |
| DEC | | | | | | | | | | | | |
| 05... | 1355 | 158 | 2690 | 7.9 | 19.5 | 690 | 470 | 170 | 64 | 340 | 5.6 | 6.6 |
| 12... | 1355 | -- | 2520 | -- | 16.0 | -- | -- | -- | -- | -- | -- | -- |
| 19... | 1055 | -- | 2900 | -- | 14.5 | -- | -- | -- | -- | -- | -- | -- |
| 27... | 1135 | -- | 2590 | -- | 14.5 | -- | -- | -- | -- | -- | -- | -- |
| JAN | | | | | | | | | | | | |
| 03... | 1415 | 135 | 2730 | 7.7 | 14.5 | 720 | 480 | 180 | 65 | 360 | 5.9 | 6.3 |
| 09... | 0750 | -- | 2740 | -- | 15.5 | -- | -- | -- | -- | -- | -- | -- |
| 16... | 1040 | -- | 3320 | -- | 15.0 | -- | -- | -- | -- | -- | -- | -- |
| 23... | 1150 | -- | 3220 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 30... | 1235 | -- | 2560 | -- | 13.5 | -- | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | | | | | | | |
| 06... | 1110 | 106 | 3080 | 7.8 | 16.5 | 820 | 560 | 200 | 77 | 400 | 6.1 | 7.0 |
| 13... | 0905 | -- | 3310 | -- | 16.0 | -- | -- | -- | -- | -- | -- | -- |
| 21... | 1045 | -- | 2630 | -- | 14.0 | -- | -- | -- | -- | -- | -- | -- |
| 27... | 1115 | -- | 2560 | -- | 16.0 | -- | -- | -- | -- | -- | -- | -- |
| MAR | | | | | | | | | | | | |
| 06... | 1240 | 101 | 3100 | 7.9 | 15.5 | 820 | 550 | 200 | 77 | 420 | 6.4 | 7.0 |
| 13... | 1340 | -- | 2660 | -- | 16.5 | -- | -- | -- | -- | -- | -- | -- |
| 20... | 1020 | -- | 2550 | -- | 16.0 | -- | -- | -- | -- | -- | -- | -- |
| 27... | 1400 | -- | 2720 | -- | 16.0 | -- | -- | -- | -- | -- | -- | -- |
| APR | | | | | | | | | | | | |
| 03... | 1155 | 207 | 2090 | 7.6 | 18.0 | 570 | 370 | 140 | 54 | 250 | 4.6 | 6.1 |
| 10... | 0835 | -- | 2200 | -- | 17.0 | -- | -- | -- | -- | -- | -- | -- |
| 17... | 0810 | -- | 2500 | -- | 18.0 | -- | -- | -- | -- | -- | -- | -- |
| 24... | 0835 | -- | 2010 | -- | 19.0 | -- | -- | -- | -- | -- | -- | -- |
| MAY | | | | | | | | | | | | |
| 01... | 1055 | 212 | 2570 | 7.5 | 19.0 | 690 | 450 | 170 | 64 | 340 | 5.6 | 7.3 |
| 08... | 1110 | -- | 2540 | -- | 20.5 | -- | -- | -- | -- | -- | -- | -- |
| 15... | 1110 | -- | 2530 | -- | 21.0 | -- | -- | -- | -- | -- | -- | -- |
| 22... | 0750 | -- | 2770 | -- | 21.0 | -- | -- | -- | -- | -- | -- | -- |
| 30... | 0730 | -- | 2320 | -- | 23.0 | -- | -- | -- | -- | -- | -- | -- |
| JUN | | | | | | | | | | | | |
| 05... | 1140 | 232 | 2290 | 7.9 | 21.5 | 640 | 420 | 160 | 59 | 280 | 4.8 | 6.5 |
| 12... | 1030 | -- | 2510 | -- | 24.5 | -- | -- | -- | -- | -- | -- | -- |
| 19... | 1010 | -- | 2550 | -- | 22.0 | -- | -- | -- | -- | -- | -- | -- |
| 26... | 0810 | -- | 2610 | -- | 21.5 | -- | -- | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | | | | |
| 03... | 1410 | 221 | 2810 | 7.8 | 25.5 | 750 | 540 | 190 | 68 | 350 | 5.5 | 7.2 |
| 10... | 1105 | -- | 2750 | -- | 25.5 | -- | -- | -- | -- | -- | -- | -- |
| 17... | 0800 | -- | 2850 | -- | 25.5 | -- | -- | -- | -- | -- | -- | -- |
| 24... | 1130 | -- | 2240 | -- | 26.0 | -- | -- | -- | -- | -- | -- | -- |
| 31... | 1150 | -- | 2500 | -- | 27.0 | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | | | | |
| 07... | 1015 | 255 | 2460 | 7.9 | 27.0 | 680 | 460 | 170 | 63 | 300 | 5.0 | 6.7 |
| 14... | 0815 | -- | 2400 | -- | 25.0 | -- | -- | -- | -- | -- | -- | -- |
| 21... | 0755 | -- | 2370 | -- | 25.5 | -- | -- | -- | -- | -- | -- | -- |
| 28... | 0755 | -- | 2120 | -- | 23.5 | -- | -- | -- | -- | -- | -- | -- |
| SEP | | | | | | | | | | | | |
| 05... | 1415 | 225 | 2440 | 8.0 | 26.0 | 670 | 450 | 170 | 60 | 300 | 5.0 | 6.4 |
| 11... | 1155 | -- | 1970 | -- | 24.5 | -- | -- | -- | -- | -- | -- | -- |
| 18... | 1355 | -- | 2120 | -- | 23.5 | -- | -- | -- | -- | -- | -- | -- |
| 25... | 1400 | -- | 2010 | -- | 24.5 | -- | -- | -- | -- | -- | -- | -- |

09429060 COLORADO RIVER INDIAN RESERVATION LOWER MAIN DRAIN NEAR PARKER, AZ--Continued

PERIOD OF RECORD.--October 1968 to current year.

REMARKS.--Unpublished miscellaneous chemical analyses for water years 1962-68 available from district office in Tucson, Ariz.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | BICARBONATE (MG/L AS HCO3) | CARBONATE (MG/L AS CO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | SOLIDS, DISSOLVED (TONS PER AC-FT) | BORON, DISSOLVED (UG/L AS B) | IRON, DISSOLVED (UG/L AS FE) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 03... | 240 | 0 | 530 | 290 | .6 | 15 | 1480 | 1420 | 2.01 | 330 | 20 |
| 11... | -- | -- | -- | -- | -- | -- | 1750 | -- | 2.38 | -- | -- |
| 17... | -- | -- | -- | -- | -- | -- | 1770 | -- | 2.41 | -- | -- |
| 25... | -- | -- | -- | -- | -- | -- | 1430 | -- | 1.94 | -- | -- |
| 31... | -- | -- | -- | -- | -- | -- | 1410 | -- | 1.92 | -- | -- |
| NOV | | | | | | | | | | | |
| 07... | 250 | 0 | 520 | 260 | .5 | 16 | -- | 1430 | 1.94 | 310 | 10 |
| 14... | -- | -- | -- | -- | -- | -- | 1600 | -- | 2.18 | -- | -- |
| 21... | -- | -- | -- | -- | -- | -- | 1530 | -- | 2.08 | -- | -- |
| 28... | -- | -- | -- | -- | -- | -- | 1660 | -- | 2.26 | -- | -- |
| DEC | | | | | | | | | | | |
| 05... | 270 | 0 | 650 | 380 | .6 | 19 | 1800 | 1760 | 2.45 | 440 | 20 |
| 12... | -- | -- | -- | -- | -- | -- | 1680 | -- | 2.28 | -- | -- |
| 19... | -- | -- | -- | -- | -- | -- | 1970 | -- | 2.68 | -- | -- |
| 27... | -- | -- | -- | -- | -- | -- | 1770 | -- | 2.41 | -- | -- |
| JAN | | | | | | | | | | | |
| 03... | 290 | 0 | 660 | 400 | .7 | 18 | 1840 | 1830 | 2.50 | 430 | 10 |
| 09... | -- | -- | -- | -- | -- | -- | 1830 | -- | 2.49 | -- | -- |
| 16... | -- | -- | -- | -- | -- | -- | 2210 | -- | 3.01 | -- | -- |
| 23... | -- | -- | -- | -- | -- | -- | 2170 | -- | 2.95 | -- | -- |
| 30... | -- | -- | -- | -- | -- | -- | 1710 | -- | 2.33 | -- | -- |
| FEB | | | | | | | | | | | |
| 06... | 310 | 0 | 690 | 480 | .7 | 20 | 2030 | 2030 | 2.76 | 470 | 10 |
| 13... | -- | -- | -- | -- | -- | -- | 2270 | -- | 3.09 | -- | -- |
| 21... | -- | -- | -- | -- | -- | -- | 1760 | -- | 2.39 | -- | -- |
| 27... | -- | -- | -- | -- | -- | -- | 1750 | -- | 2.38 | -- | -- |
| MAR | | | | | | | | | | | |
| 06... | 330 | 0 | 740 | 450 | .7 | 18 | 2070 | 2080 | 2.82 | 510 | 10 |
| 13... | -- | -- | -- | -- | -- | -- | 1760 | -- | 2.39 | -- | -- |
| 20... | -- | -- | -- | -- | -- | -- | 1670 | -- | 2.27 | -- | -- |
| 27... | -- | -- | -- | -- | -- | -- | 1830 | -- | 2.49 | -- | -- |
| APR | | | | | | | | | | | |
| 03... | 250 | 0 | 480 | 270 | .6 | 16 | 1380 | 1340 | 1.88 | 290 | 20 |
| 10... | -- | -- | -- | -- | -- | -- | 1440 | -- | 1.96 | -- | -- |
| 17... | -- | -- | -- | -- | -- | -- | 1650 | -- | 2.24 | -- | -- |
| 24... | -- | -- | -- | -- | -- | -- | 1330 | -- | 1.81 | -- | -- |
| MAY | | | | | | | | | | | |
| 01... | 290 | 0 | 600 | 360 | .6 | 17 | 1730 | 1700 | 2.35 | 360 | 0 |
| 08... | -- | -- | -- | -- | -- | -- | 1650 | -- | 2.24 | -- | -- |
| 15... | -- | -- | -- | -- | -- | -- | 1680 | -- | 2.28 | -- | -- |
| 22... | -- | -- | -- | -- | -- | -- | 1880 | -- | 2.56 | -- | -- |
| 30... | -- | -- | -- | -- | -- | -- | 1550 | -- | 2.11 | -- | -- |
| JUN | | | | | | | | | | | |
| 05... | 240 | -- | 530 | 310 | .6 | 18 | 1490 | 1480 | 2.03 | 310 | 20 |
| 12... | -- | -- | -- | -- | -- | -- | 1660 | -- | 2.26 | -- | -- |
| 19... | -- | -- | -- | -- | -- | -- | 1730 | -- | 2.35 | -- | -- |
| 26... | -- | -- | -- | -- | -- | -- | 1740 | -- | 2.37 | -- | -- |
| JUL | | | | | | | | | | | |
| 03... | 260 | 0 | 650 | 410 | .6 | 21 | 1880 | 1830 | 2.56 | 390 | 50 |
| 10... | -- | -- | -- | -- | -- | -- | 1860 | -- | 2.53 | -- | -- |
| 17... | -- | -- | -- | -- | -- | -- | 1890 | -- | 2.57 | -- | -- |
| 24... | -- | -- | -- | -- | -- | -- | 1500 | -- | 2.04 | -- | -- |
| 31... | -- | -- | -- | -- | -- | -- | 1680 | -- | 2.28 | -- | -- |
| AUG | | | | | | | | | | | |
| 07... | 270 | 0 | 590 | 350 | .6 | 18 | 1630 | 1630 | 2.22 | 330 | 10 |
| 14... | -- | -- | -- | -- | -- | -- | 1590 | -- | 2.16 | -- | -- |
| 21... | -- | -- | -- | -- | -- | -- | 1570 | -- | 2.14 | -- | -- |
| 28... | -- | -- | -- | -- | -- | -- | 1370 | -- | 1.86 | -- | -- |
| SEP | | | | | | | | | | | |
| 05... | 270 | 0 | 600 | 330 | .7 | 19 | 1600 | 1620 | 2.18 | 330 | 30 |
| 11... | -- | -- | -- | -- | -- | -- | 1280 | -- | 1.74 | -- | -- |
| 18... | -- | -- | -- | -- | -- | -- | 1400 | -- | 1.90 | -- | -- |
| 25... | -- | -- | -- | -- | -- | -- | 1330 | -- | 1.81 | -- | -- |

## 09429130 PALO VERDE IRRIGATION DISTRICT OLIVE LAKE DRAIN NEAR BLYTHE, CA

LOCATION.--Lat 33°40'36", long 114°32'09", in SW¼SW¼ sec.1, T.6 S., R.23 E., San Bernardino meridian, Riverside County, Hydrologic Unit 15030104, 0.3 mi (0.5 km) upstream from mouth, and 5 mi (8 km) northeast of Blythe.

PERIOD OF RECORD.--October 1968 to September 1970 (partial-record station), October 1970 to current year.

REMARKS.--Unpublished miscellaneous chemical analyses for water years 1962-68 available from district office in Tucson, Ariz.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 03... | 0730 | 9.0 | 1630 | 7.9 | 13.0 | 540 | 290 | 140 | 45 | 160 | 3.0 | 6.0 |
| NOV | | | | | | | | | | | | |
| 01... | 0930 | 6.0 | 1590 | 7.5 | 18.0 | 520 | 280 | 140 | 42 | 160 | 3.0 | 6.2 |
| DEC | | | | | | | | | | | | |
| 01... | 0830 | 9.0 | 1660 | 7.7 | 8.0 | 590 | 330 | 160 | 46 | 160 | 2.9 | 6.1 |
| JAN | | | | | | | | | | | | |
| 03... | 1010 | 6.0 | 1650 | 7.5 | 14.5 | 560 | 300 | 150 | 44 | 160 | 3.0 | 6.5 |
| FEB | | | | | | | | | | | | |
| 01... | 0820 | 1.0 | 1690 | 7.7 | 14.0 | 580 | 320 | 160 | 45 | 160 | 2.9 | 7.1 |
| MAR | | | | | | | | | | | | |
| 13... | 1000 | 9.0 | 1580 | 7.8 | 16.0 | 550 | 310 | 150 | 43 | 150 | 2.8 | 6.1 |
| APR | | | | | | | | | | | | |
| 03... | 0825 | 10 | 1300 | 7.8 | 18.0 | 420 | 240 | 110 | 36 | 120 | 2.5 | 5.5 |
| MAY | | | | | | | | | | | | |
| 01... | 0810 | 12 | 1610 | 7.5 | 18.5 | 530 | 280 | 140 | 44 | 160 | 3.0 | 6.5 |
| JUN | | | | | | | | | | | | |
| 01... | 0745 | 9.0 | 1520 | 7.5 | 21.0 | 490 | 270 | 130 | 41 | 150 | 2.9 | 6.8 |
| JUL | | | | | | | | | | | | |
| 06... | 0940 | E12 | 1620 | 7.5 | 22.0 | 560 | 300 | 150 | 44 | 160 | 3.0 | 5.6 |
| AUG | | | | | | | | | | | | |
| 01... | 1120 | 17 | 1650 | 7.4 | 23.0 | 560 | 310 | 150 | 46 | 160 | 2.9 | 6.5 |
| SEP | | | | | | | | | | | | |
| 06... | 1400 | 9.0 | 1580 | 7.4 | 25.5 | 540 | 330 | 150 | 39 | 150 | 2.8 | 5.8 |

E Estimated.

09429130 PALO VERDE IRRIGATION DISTRICT OLIVE LAKE DRAIN NEAR BLYTHE, CA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | BICARBONATE (MG/L AS HCO3) | CARBONATE (MG/L AS CO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | SOLIDS, DISSOLVED (TONS PER AC-FT) | NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) | BORON, DISSOLVED (UG/L AS B) | IRON, DISSOLVED (UG/L AS FE) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 03... | 300 | 0 | 420 | 150 | .4 | 18 | 1040 | 1090 | 1.41 | -- | 190 | 40 |
| NOV | | | | | | | | | | | | |
| 01... | 300 | 0 | 420 | 140 | .4 | 18 | 1060 | 1070 | 1.44 | -- | 190 | 20 |
| DEC | | | | | | | | | | | | |
| 01... | 320 | 0 | 440 | 140 | .4 | 19 | 1060 | 1130 | 1.44 | -- | 210 | 20 |
| JAN | | | | | | | | | | | | |
| 03... | 310 | 0 | 450 | 150 | .5 | 19 | 1120 | 1130 | 1.52 | -- | 190 | 20 |
| FEB | | | | | | | | | | | | |
| 01... | 320 | 0 | 440 | 150 | .4 | 18 | 1140 | 1140 | 1.55 | -- | 200 | 30 |
| MAR | | | | | | | | | | | | |
| 13... | 300 | 0 | 400 | 140 | .4 | 16 | 1050 | 1050 | 1.43 | -- | 190 | 10 |
| APR | | | | | | | | | | | | |
| 03... | 220 | 0 | 330 | 110 | .3 | 12 | 856 | 832 | 1.16 | -- | 160 | 20 |
| MAY | | | | | | | | | | | | |
| 01... | 300 | 0 | 410 | 140 | .4 | 16 | 1060 | 1070 | 1.44 | -- | 190 | 0 |
| JUN | | | | | | | | | | | | |
| 01... | 270 | 0 | 390 | 140 | .4 | 14 | 1010 | 1010 | 1.37 | -- | 180 | 0 |
| JUL | | | | | | | | | | | | |
| 06... | 320 | 0 | 430 | 140 | .4 | 18 | 1070 | 1110 | 1.46 | -- | 190 | 10 |
| AUG | | | | | | | | | | | | |
| 01... | 310 | 0 | 430 | 150 | .4 | 18 | 1110 | 1120 | 1.51 | .23 | 200 | 20 |
| SEP | | | | | | | | | | | | |
| 06... | 250 | 0 | 420 | 140 | .4 | 19 | 1060 | 1050 | 1.44 | .32 | 200 | 20 |

## 09429188 COLORADO RIVER AT TAYLOR FERRY, NEAR BLYTHE, CA

LOCATION.--Lat 33°26'03", long 114°37'35", in SE¼ sec.36, T.8 S., R.22 E., San Bernardino meridian, Riverside County, Hydrologic Unit 15030104, at gaging station, at site of old Taylor Ferry, 2.5 mi (4.0 km) upstream from Cibola Bridge, 12 mi (19 km) south of Blythe, Calif., 28 mi (45 km) downstream from Palo Verde Dam, and 62 mi (100 km) upstream from Imperial Dam.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 03... | 1220 | 2380 | 1200 | 7.7 | 23.5 | 360 | 220 | 88 | 33 | 120 | 2.8 | 5.0 |
| 11... | 0850 | -- | 1220 | -- | 22.0 | -- | -- | -- | -- | -- | -- | -- |
| 17... | 0730 | -- | 1230 | -- | 23.5 | -- | -- | -- | -- | -- | -- | -- |
| 25... | 1245 | -- | 1180 | -- | 21.5 | -- | -- | -- | -- | -- | -- | -- |
| 31... | 1210 | -- | 1200 | -- | 20.5 | -- | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | | | | | | | |
| 07... | 0820 | 4920 | 1190 | 7.8 | 21.0 | 360 | 220 | 89 | 33 | 120 | 2.8 | 5.2 |
| 14... | 1250 | -- | 1190 | -- | 20.0 | -- | -- | -- | -- | -- | -- | -- |
| 21... | 1000 | -- | 1160 | -- | 15.5 | -- | -- | -- | -- | -- | -- | -- |
| 28... | 1240 | -- | 1330 | -- | 18.5 | -- | -- | -- | -- | -- | -- | -- |
| DEC | | | | | | | | | | | | |
| 05... | 0945 | 5300 | 1170 | 7.9 | 18.0 | 350 | 210 | 84 | 33 | 120 | 2.8 | 5.1 |
| 12... | 0800 | -- | 1180 | -- | 15.5 | -- | -- | -- | -- | -- | -- | -- |
| 19... | 0745 | -- | 1190 | -- | 15.0 | -- | -- | -- | -- | -- | -- | -- |
| 27... | 1000 | -- | 1160 | -- | 15.0 | -- | -- | -- | -- | -- | -- | -- |
| JAN | | | | | | | | | | | | |
| 03... | 0900 | 3720 | 1340 | 7.8 | 12.0 | 400 | 240 | 100 | 37 | 140 | 3.0 | 5.0 |
| 10... | 0800 | -- | 1340 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 16... | 0725 | -- | 1340 | -- | 13.0 | -- | -- | -- | -- | -- | -- | -- |
| 23... | 0825 | -- | 1330 | -- | 13.5 | -- | -- | -- | -- | -- | -- | -- |
| 30... | 0930 | -- | 1180 | -- | 12.0 | -- | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | | | | | | | |
| 06... | 0845 | 856 | 1200 | 8.0 | 13.5 | 360 | 220 | 89 | 33 | 120 | 2.8 | 4.7 |
| 13... | 1010 | -- | 1140 | -- | 14.0 | -- | -- | -- | -- | -- | -- | -- |
| 21... | 1055 | -- | 1130 | -- | 13.5 | -- | -- | -- | -- | -- | -- | -- |
| 27... | 0835 | -- | 1140 | -- | 14.5 | -- | -- | -- | -- | -- | -- | -- |
| MAR | | | | | | | | | | | | |
| 06... | 1100 | 3050 | 1200 | 8.0 | 15.5 | 350 | 200 | 83 | 34 | 120 | 2.8 | 5.0 |
| 13... | 0745 | -- | 1140 | -- | 15.0 | -- | -- | -- | -- | -- | -- | -- |
| 20... | 0830 | -- | 1150 | -- | 16.0 | -- | -- | -- | -- | -- | -- | -- |
| 27... | 0810 | -- | 1150 | -- | 17.0 | -- | -- | -- | -- | -- | -- | -- |
| APR | | | | | | | | | | | | |
| 03... | 0825 | 13500 | 1110 | 7.9 | 18.0 | 350 | 210 | 86 | 32 | 110 | 2.6 | 4.8 |
| 10... | 0850 | -- | 1130 | -- | 18.0 | -- | -- | -- | -- | -- | -- | -- |
| 17... | 0815 | -- | 1140 | -- | 18.0 | -- | -- | -- | -- | -- | -- | -- |
| 24... | 1130 | -- | 1140 | -- | 19.0 | -- | -- | -- | -- | -- | -- | -- |
| MAY | | | | | | | | | | | | |
| 01... | 0745 | 12900 | 1170 | 7.8 | 18.0 | 360 | 210 | 88 | 34 | 110 | 2.5 | 5.4 |
| 08... | 0745 | -- | 1180 | -- | 20.0 | -- | -- | -- | -- | -- | -- | -- |
| 15... | 0735 | -- | 1170 | -- | 22.0 | -- | -- | -- | -- | -- | -- | -- |
| 22... | 1130 | -- | 1190 | -- | 23.5 | -- | -- | -- | -- | -- | -- | -- |
| 30... | 0735 | -- | 1170 | -- | 20.5 | -- | -- | -- | -- | -- | -- | -- |
| JUN | | | | | | | | | | | | |
| 05... | 0855 | 8130 | 1160 | 7.9 | 23.5 | 360 | 230 | 88 | 33 | 120 | 2.8 | 5.2 |
| 12... | 0920 | -- | 1190 | -- | 24.5 | -- | -- | -- | -- | -- | -- | -- |
| 19... | 1130 | -- | 1180 | -- | 23.5 | -- | -- | -- | -- | -- | -- | -- |
| 26... | 0850 | -- | 1150 | -- | 26.5 | -- | -- | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | | | | |
| 03... | 0740 | 13900 | 1160 | 7.9 | 25.5 | 360 | 220 | 90 | 32 | 110 | 2.5 | 5.0 |
| 10... | 0750 | -- | 1160 | -- | 16.0 | -- | -- | -- | -- | -- | -- | -- |
| 17... | 0800 | -- | 1150 | -- | 24.5 | -- | -- | -- | -- | -- | -- | -- |
| 24... | 0740 | -- | 1150 | -- | 25.5 | -- | -- | -- | -- | -- | -- | -- |
| 31... | 0735 | -- | 1160 | -- | 26.5 | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | | | | |
| 07... | 0900 | 11100 | 1140 | 7.9 | 26.5 | 330 | 200 | 84 | 30 | 110 | 2.6 | 5.1 |
| 14... | 0845 | -- | 1170 | -- | 25.5 | -- | -- | -- | -- | -- | -- | -- |
| 21... | 0825 | -- | 1170 | -- | 26.5 | -- | -- | -- | -- | -- | -- | -- |
| 28... | 1155 | -- | 1190 | -- | 26.5 | -- | -- | -- | -- | -- | -- | -- |
| SEP | | | | | | | | | | | | |
| 05... | 0845 | -- | 1170 | -- | 25.5 | -- | -- | -- | -- | -- | -- | -- |
| 11... | 0820 | -- | 1160 | -- | 24.5 | -- | -- | -- | -- | -- | -- | -- |
| 18... | 0815 | -- | 1170 | -- | 22.0 | -- | -- | -- | -- | -- | -- | -- |
| 25... | 0830 | -- | 1160 | -- | 22.0 | -- | -- | -- | -- | -- | -- | -- |

09429188 COLORADO RIVER AT TAYLOR FERRY, NEAR BLYTHE, CA--Continued

DRAINAGE AREA.--187,700 mi² (486,100 km²), approximately, including 3,959 mi² (10,254 km²) in Great Divide basin in southern Wyoming which is noncontributing.

PERIOD OF RECORD.--April 1970 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | BICARBONATE (MG/L AS HCO3) | CARBONATE (MG/L AS CO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | SOLIDS, DISSOLVED (TONS PER AC-FT) | BORON, DISSOLVED (UG/L AS B) | IRON, DISSOLVED (UG/L AS FE) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 03... | 170 | 0 | 340 | 110 | .4 | 9.9 | 766 | 790 | 1.04 | 150 | 30 |
| 11... | -- | -- | -- | -- | -- | -- | 780 | -- | 1.06 | -- | -- |
| 17... | -- | -- | -- | -- | -- | -- | 790 | -- | 1.07 | -- | -- |
| 25... | -- | -- | -- | -- | -- | -- | 756 | -- | 1.03 | -- | -- |
| 31... | -- | -- | -- | -- | -- | -- | 772 | -- | 1.05 | -- | -- |
| NOV | | | | | | | | | | | |
| 07... | 170 | 0 | 330 | 100 | .4 | 9.9 | 762 | 771 | 1.04 | 160 | 10 |
| 14... | -- | -- | -- | -- | -- | -- | 764 | -- | 1.04 | -- | -- |
| 21... | -- | -- | -- | -- | -- | -- | 740 | -- | 1.01 | -- | -- |
| 28... | -- | -- | -- | -- | -- | -- | 848 | -- | 1.15 | -- | -- |
| DEC | | | | | | | | | | | |
| 05... | 160 | 0 | 320 | 100 | .5 | 9.7 | 750 | 751 | 1.02 | 160 | 20 |
| 12... | -- | -- | -- | -- | -- | -- | 758 | -- | 1.03 | -- | -- |
| 19... | -- | -- | -- | -- | -- | -- | 764 | -- | 1.04 | -- | -- |
| 27... | -- | -- | -- | -- | -- | -- | 740 | -- | 1.01 | -- | -- |
| JAN | | | | | | | | | | | |
| 03... | 200 | 0 | 350 | 130 | .5 | 11 | 860 | 872 | 1.17 | 180 | 20 |
| 10... | -- | -- | -- | -- | -- | -- | 860 | -- | 1.17 | -- | -- |
| 16... | -- | -- | -- | -- | -- | -- | 858 | -- | 1.17 | -- | -- |
| 23... | -- | -- | -- | -- | -- | -- | 852 | -- | 1.16 | -- | -- |
| 30... | -- | -- | -- | -- | -- | -- | 754 | -- | 1.03 | -- | -- |
| FEB | | | | | | | | | | | |
| 06... | 170 | 0 | 310 | 110 | .4 | 9.3 | 770 | 760 | 1.05 | 160 | 10 |
| 13... | -- | -- | -- | -- | -- | -- | 728 | -- | .99 | -- | -- |
| 21... | -- | -- | -- | -- | -- | -- | 720 | -- | .98 | -- | -- |
| 27... | -- | -- | -- | -- | -- | -- | 730 | -- | .99 | -- | -- |
| MAR | | | | | | | | | | | |
| 06... | 180 | 0 | 310 | 100 | .4 | 8.3 | 770 | 750 | 1.05 | 160 | 10 |
| 13... | -- | -- | -- | -- | -- | -- | 728 | -- | .99 | -- | -- |
| 20... | -- | -- | -- | -- | -- | -- | 734 | -- | 1.00 | -- | -- |
| 27... | -- | -- | -- | -- | -- | -- | 734 | -- | 1.00 | -- | -- |
| APR | | | | | | | | | | | |
| 03... | 170 | 0 | 290 | 97 | .4 | 9.5 | 708 | 714 | .96 | 150 | 10 |
| 10... | -- | -- | -- | -- | -- | -- | 720 | -- | .98 | -- | -- |
| 17... | -- | -- | -- | -- | -- | -- | 726 | -- | .99 | -- | -- |
| 24... | -- | -- | -- | -- | -- | -- | 728 | -- | .99 | -- | -- |
| MAY | | | | | | | | | | | |
| 01... | 180 | 0 | 290 | 120 | .4 | 9.6 | 746 | 746 | 1.01 | 150 | 10 |
| 08... | -- | -- | -- | -- | -- | -- | 754 | -- | 1.03 | -- | -- |
| 15... | -- | -- | -- | -- | -- | -- | 750 | -- | 1.02 | -- | -- |
| 22... | -- | -- | -- | -- | -- | -- | 764 | -- | 1.04 | -- | -- |
| 30... | -- | -- | -- | -- | -- | -- | 740 | -- | 1.01 | -- | -- |
| JUN | | | | | | | | | | | |
| 05... | 160 | 0 | 300 | 110 | .4 | 10 | 734 | 746 | 1.00 | 150 | 40 |
| 12... | -- | -- | -- | -- | -- | -- | 750 | -- | 1.02 | -- | -- |
| 19... | -- | -- | -- | -- | -- | -- | 746 | -- | 1.01 | -- | -- |
| 26... | -- | -- | -- | -- | -- | -- | 728 | -- | .99 | -- | -- |
| JUL | | | | | | | | | | | |
| 03... | 170 | 0 | 300 | 99 | .3 | 9.4 | 734 | 731 | 1.00 | 170 | 20 |
| 10... | -- | -- | -- | -- | -- | -- | 734 | -- | 1.00 | -- | -- |
| 17... | -- | -- | -- | -- | -- | -- | 726 | -- | .99 | -- | -- |
| 24... | -- | -- | -- | -- | -- | -- | 728 | -- | .99 | -- | -- |
| 31... | -- | -- | -- | -- | -- | -- | 736 | -- | 1.00 | -- | -- |
| AUG | | | | | | | | | | | |
| 07... | 160 | 0 | 310 | 100 | .3 | 9.4 | 722 | 729 | .98 | 160 | 10 |
| 14... | -- | -- | -- | -- | -- | -- | 742 | -- | 1.01 | -- | -- |
| 21... | -- | -- | -- | -- | -- | -- | 746 | -- | 1.01 | -- | -- |
| 28... | -- | -- | -- | -- | -- | -- | 756 | -- | 1.03 | -- | -- |
| SEP | | | | | | | | | | | |
| 05... | -- | -- | -- | -- | -- | -- | 744 | -- | 1.01 | -- | -- |
| 11... | -- | -- | -- | -- | -- | -- | 732 | -- | 1.00 | -- | -- |
| 18... | -- | -- | -- | -- | -- | -- | 748 | -- | 1.02 | -- | -- |
| 25... | -- | -- | -- | -- | -- | -- | 736 | -- | 1.00 | -- | -- |

## 09429220 PALO VERDE IRRIGATION DISTRICT OUTFALL DRAIN NEAR PALO VERDE, CA

LOCATION.--Lat 33°21'41", long 114°43'20", in SE¼SE¼ sec.26, T.9 S., R.21 E., San Bernardino meridian, Imperial County, Hydrologic Unit 15030104, at gaging station, at State Highway 78 bridge, 3.3 mi (5.3 km) upstream from mouth, and 5 mi (8 km) south of Palo Verde.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 03... | 1200 | 577 | 2560 | 7.1 | 25.0 | 550 | 280 | 140 | 48 | 350 | 6.5 |
| 11... | 0915 | -- | 2580 | -- | 24.0 | -- | -- | -- | -- | -- | -- |
| 11... | 1000 | -- | 2750 | -- | 24.0 | -- | -- | -- | -- | -- | -- |
| 17... | 0750 | -- | 2390 | -- | 24.5 | -- | -- | -- | -- | -- | -- |
| 25... | 1415 | -- | 2580 | -- | 24.0 | -- | -- | -- | -- | -- | -- |
| 31... | 1355 | -- | 2480 | -- | 24.0 | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | | | | | | |
| 07... | 1020 | 512 | 2370 | 7.8 | 23.0 | 530 | 280 | 140 | 44 | 340 | 6.4 |
| 14... | 1330 | -- | 2140 | -- | 20.5 | -- | -- | -- | -- | -- | -- |
| 21... | 1200 | -- | 2180 | -- | 20.5 | -- | -- | -- | -- | -- | -- |
| 28... | 1420 | -- | 2460 | -- | 20.5 | -- | -- | -- | -- | -- | -- |
| DEC | | | | | | | | | | | |
| 05... | 0800 | 537 | 2370 | 7.9 | 18.5 | 510 | 270 | 130 | 45 | 330 | 6.4 |
| 06... | 0915 | -- | 2560 | -- | 17.0 | -- | -- | -- | -- | -- | -- |
| 12... | 0945 | -- | 2420 | -- | 18.0 | -- | -- | -- | -- | -- | -- |
| 19... | 0935 | -- | 2520 | -- | 16.5 | -- | -- | -- | -- | -- | -- |
| 27... | 0825 | -- | 2360 | -- | 17.0 | -- | -- | -- | -- | -- | -- |
| JAN | | | | | | | | | | | |
| 03... | 0900 | 505 | 2310 | 7.7 | 16.0 | 500 | 260 | 130 | 42 | 340 | 6.6 |
| 10... | 0840 | -- | 2720 | -- | -- | -- | -- | -- | -- | -- | -- |
| 16... | 0910 | -- | 2400 | -- | 16.5 | -- | -- | -- | -- | -- | -- |
| 23... | 1000 | -- | 2340 | -- | 15.0 | -- | -- | -- | -- | -- | -- |
| 30... | 1200 | -- | 2460 | -- | 15.5 | -- | -- | -- | -- | -- | -- |
| 31... | 1145 | -- | 2450 | -- | 18.0 | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | | | | | | |
| 06... | 1055 | 400 | 2470 | 7.9 | 18.0 | 530 | 280 | 130 | 50 | 360 | 6.8 |
| 13... | 0755 | -- | 2660 | -- | 14.5 | -- | -- | -- | -- | -- | -- |
| 21... | 1320 | -- | 2490 | -- | 18.5 | -- | -- | -- | -- | -- | -- |
| 27... | 1015 | -- | 2260 | -- | 18.0 | -- | -- | -- | -- | -- | -- |
| MAR | | | | | | | | | | | |
| 06... | 1040 | 475 | 2310 | 7.8 | 19.0 | 490 | 250 | 120 | 45 | 330 | 6.5 |
| 13... | 0950 | -- | 2400 | -- | 17.0 | -- | -- | -- | -- | -- | -- |
| 20... | 1035 | -- | 2370 | -- | 18.5 | -- | -- | -- | -- | -- | -- |
| 27... | 1015 | -- | 2550 | -- | 18.5 | -- | -- | -- | -- | -- | -- |
| APR | | | | | | | | | | | |
| 03... | 1020 | 585 | 2310 | 7.8 | 19.0 | 480 | 240 | 120 | 43 | 340 | 6.8 |
| 10... | 1050 | -- | 2400 | -- | 19.0 | -- | -- | -- | -- | -- | -- |
| 17... | 1025 | -- | 2320 | -- | 19.0 | -- | -- | -- | -- | -- | -- |
| 24... | 0920 | -- | 2590 | -- | 20.0 | -- | -- | -- | -- | -- | -- |
| MAY | | | | | | | | | | | |
| 01... | 1040 | 693 | 2380 | 7.6 | 19.5 | 510 | 260 | 130 | 45 | 340 | 6.6 |
| 02... | 0945 | -- | 2600 | -- | 20.0 | -- | -- | -- | -- | -- | -- |
| 08... | 0930 | -- | 2420 | -- | 22.0 | -- | -- | -- | -- | -- | -- |
| 15... | 0935 | -- | 2490 | -- | 23.5 | -- | -- | -- | -- | -- | -- |
| 22... | 1335 | -- | 2670 | -- | 23.5 | -- | -- | -- | -- | -- | -- |
| 30... | 1020 | -- | 2680 | -- | 22.0 | -- | -- | -- | -- | -- | -- |
| JUN | | | | | | | | | | | |
| 05... | 1120 | 698 | 2360 | 7.6 | 25.0 | 480 | 280 | 120 | 43 | 360 | 7.2 |
| 12... | 1220 | -- | 2440 | -- | 25.5 | -- | -- | -- | -- | -- | -- |
| 19... | 1200 | -- | 2710 | -- | 25.0 | -- | -- | -- | -- | -- | -- |
| 26... | 1115 | -- | 2810 | -- | 25.5 | -- | -- | -- | -- | -- | -- |
| 27... | 1000 | -- | 2800 | -- | 24.0 | -- | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | | | |
| 03... | 1000 | 616 | 2860 | 8.0 | 28.0 | 530 | 390 | 140 | 44 | 430 | 8.1 |
| 10... | 1010 | -- | 2730 | -- | 18.5 | -- | -- | -- | -- | -- | -- |
| 17... | 1150 | -- | 2860 | -- | 28.0 | -- | -- | -- | -- | -- | -- |
| 24... | 0950 | -- | 2780 | -- | 28.5 | -- | -- | -- | -- | -- | -- |
| 31... | 1000 | -- | 2610 | -- | 25.5 | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | | | |
| 07... | 1100 | 722 | 2540 | 8.1 | 29.0 | 500 | 250 | 130 | 42 | 390 | 7.6 |
| 14... | 1100 | -- | 2460 | -- | 27.0 | -- | -- | -- | -- | -- | -- |
| 21... | 1000 | -- | 2660 | -- | 28.0 | -- | -- | -- | -- | -- | -- |
| 28... | 1345 | -- | 2650 | -- | 26.5 | -- | -- | -- | -- | -- | -- |
| SEP | | | | | | | | | | | |
| 11... | 1025 | -- | 2360 | -- | 25.5 | -- | -- | -- | -- | -- | -- |
| 18... | 1035 | -- | 2580 | -- | 21.5 | -- | -- | -- | -- | -- | -- |
| 25... | 1015 | -- | 2490 | -- | 24.0 | -- | -- | -- | -- | -- | -- |

09429220 PALO VERDE IRRIGATION DISTRICT OUTFALL DRAIN NEAR PALO VERDE, CA--Continued

PERIOD OF RECORD.--October 1968 to current year.

REMARKS.--Unpublished miscellaneous chemical analyses for water years 1962-68 available from district office in Tucson, Ariz.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | POTASSIUM, DISSOLVED (MG/L AS K) | BICARBONATE (MG/L AS HCO3) | CARBONATE (MG/L AS CO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | SOLIDS, DISSOLVED (TONS PER AC-FT) | NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 03... | 6.0 | 320 | 0 | 560 | 350 | 1.1 | 20 | 1650 | 1630 | 2.24 | -- |
| 11... | -- | -- | -- | -- | -- | -- | -- | 1680 | -- | 2.28 | -- |
| 17... | -- | -- | -- | -- | -- | -- | -- | 1550 | -- | 2.11 | -- |
| 25... | -- | -- | -- | -- | -- | -- | -- | 1680 | -- | 2.28 | -- |
| 31... | -- | -- | -- | -- | -- | -- | -- | 1620 | -- | 2.20 | -- |
| NOV | | | | | | | | | | | |
| 07... | 6.2 | 300 | 0 | 550 | 310 | 1.1 | 20 | 1540 | 1560 | 2.09 | -- |
| 14... | -- | -- | -- | -- | -- | -- | -- | 1370 | -- | 1.86 | -- |
| 21... | -- | -- | -- | -- | -- | -- | -- | 1420 | -- | 1.93 | -- |
| 28... | -- | -- | -- | -- | -- | -- | -- | 1610 | -- | 2.19 | -- |
| DEC | | | | | | | | | | | |
| 05... | 6.2 | 290 | 0 | 540 | 320 | 1.1 | 20 | 1560 | 1540 | 2.12 | -- |
| 06... | 6.3 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 12... | -- | -- | -- | -- | -- | -- | -- | 1550 | -- | 2.11 | -- |
| 19... | -- | -- | -- | -- | -- | -- | -- | 1630 | -- | 2.22 | -- |
| 27... | -- | -- | -- | -- | -- | -- | -- | 1520 | -- | 2.07 | -- |
| JAN | | | | | | | | | | | |
| 03... | 5.7 | 290 | 0 | 510 | 310 | 1.1 | 19 | 1490 | 1500 | 2.03 | -- |
| 10... | -- | -- | -- | -- | -- | -- | -- | 1770 | -- | 2.41 | -- |
| 16... | -- | -- | -- | -- | -- | -- | -- | 1550 | -- | 2.11 | -- |
| 23... | -- | -- | -- | -- | -- | -- | -- | 1490 | -- | 2.03 | -- |
| 30... | -- | -- | -- | -- | -- | -- | -- | 1580 | -- | 2.15 | -- |
| 31... | 6.6 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | | | | | | |
| 06... | 6.0 | 300 | 0 | 540 | 350 | 1.1 | 20 | 1580 | 1610 | 2.15 | -- |
| 13... | -- | -- | -- | -- | -- | -- | -- | 1720 | -- | 2.34 | -- |
| 21... | -- | -- | -- | -- | -- | -- | -- | 1590 | -- | 2.16 | -- |
| 27... | -- | -- | -- | -- | -- | -- | -- | 1460 | -- | 1.99 | -- |
| MAR | | | | | | | | | | | |
| 06... | 6.0 | 290 | 0 | 520 | 320 | .9 | 16 | 1490 | 1500 | 2.03 | -- |
| 13... | -- | -- | -- | -- | -- | -- | -- | 1560 | -- | 2.12 | -- |
| 20... | -- | -- | -- | -- | -- | -- | -- | 1510 | -- | 2.05 | -- |
| 27... | -- | -- | -- | -- | -- | -- | -- | 1660 | -- | 2.26 | -- |
| APR | | | | | | | | | | | |
| 03... | 6.1 | 290 | 0 | 530 | 310 | 1.1 | 18 | 1490 | 1510 | 2.03 | -- |
| 10... | -- | -- | -- | -- | -- | -- | -- | 1540 | -- | 2.09 | -- |
| 17... | -- | -- | -- | -- | -- | -- | -- | 1490 | -- | 2.03 | -- |
| 24... | -- | -- | -- | -- | -- | -- | -- | 1690 | -- | 2.30 | -- |
| MAY | | | | | | | | | | | |
| 01... | 7.0 | 310 | 0 | 530 | 320 | 1.1 | 19 | 1530 | 1550 | 2.08 | -- |
| 02... | 6.3 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 08... | -- | -- | -- | -- | -- | -- | -- | 1550 | -- | 2.11 | -- |
| 15... | -- | -- | -- | -- | -- | -- | -- | 1590 | -- | 2.16 | -- |
| 22... | -- | -- | -- | -- | -- | -- | -- | 1710 | -- | 2.33 | -- |
| 30... | -- | -- | -- | -- | -- | -- | -- | 1720 | -- | 2.34 | -- |
| JUN | | | | | | | | | | | |
| 05... | 6.7 | 310 | -- | 510 | 350 | 1.1 | 18 | 1520 | 1560 | 2.07 | -- |
| 12... | -- | -- | -- | -- | -- | -- | -- | 1570 | -- | 2.14 | -- |
| 19... | -- | -- | -- | -- | -- | -- | -- | 1730 | -- | 2.35 | -- |
| 26... | -- | -- | -- | -- | -- | -- | -- | 1810 | -- | 2.46 | -- |
| 27... | 6.8 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | | | |
| 03... | 6.5 | 170 | 0 | 620 | 430 | 1.2 | 21 | 1850 | 1780 | 2.52 | .71 |
| 10... | -- | -- | -- | -- | -- | -- | -- | 1750 | -- | 2.38 | -- |
| 17... | -- | -- | -- | -- | -- | -- | -- | 1830 | -- | 2.49 | -- |
| 24... | -- | -- | -- | -- | -- | -- | -- | 1800 | -- | 2.45 | -- |
| 31... | -- | -- | -- | -- | -- | -- | -- | 1680 | -- | 2.28 | -- |
| AUG | | | | | | | | | | | |
| 07... | 7.2 | 300 | 0 | 580 | 380 | 1.2 | 20 | 1630 | 1700 | 2.22 | .63 |
| 14... | -- | -- | -- | -- | -- | -- | -- | 1590 | -- | 2.16 | -- |
| 21... | -- | -- | -- | -- | -- | -- | -- | 1730 | -- | 2.35 | -- |
| 28... | -- | -- | -- | -- | -- | -- | -- | 1720 | -- | 2.34 | -- |
| SEP | | | | | | | | | | | |
| 11... | -- | -- | -- | -- | -- | -- | -- | 1510 | -- | 2.05 | -- |
| 18... | -- | -- | -- | -- | -- | -- | -- | 1660 | -- | 2.26 | -- |
| 25... | -- | -- | -- | -- | -- | -- | -- | 1610 | -- | 2.19 | -- |

09429220 PALO VERDE IRRIGATION DISTRICT OUTFALL DRAIN NEAR PALO VERDE, CA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | BORON, DIS-SOLVED (UG/L AS B) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) | IRON, DIS-SOLVED (UG/L AS FE) | MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) | ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) |
|---|---|---|---|---|---|
| OCT | | | | | |
| 03... | 530 | -- | 20 | -- | -- |
| NOV | | | | | |
| 07... | 470 | -- | 10 | -- | -- |
| DEC | | | | | |
| 05... | 480 | -- | 20 | -- | -- |
| 06... | -- | 8 | -- | .1 | 30 |
| JAN | | | | | |
| 03... | 480 | -- | 20 | -- | -- |
| 31... | -- | 15 | -- | .0 | 30 |
| FEB | | | | | |
| 06... | 510 | -- | 10 | -- | -- |
| MAR | | | | | |
| 06... | 490 | -- | 10 | -- | -- |
| APR | | | | | |
| 03... | 470 | -- | 10 | -- | -- |
| MAY | | | | | |
| 01... | 470 | -- | 10 | -- | -- |
| 02... | -- | 5 | -- | .1 | 40 |
| JUN | | | | | |
| 05... | 490 | -- | 20 | -- | -- |
| 27... | -- | 9 | -- | .0 | 40 |
| JUL | | | | | |
| 03... | 640 | -- | 20 | -- | -- |
| AUG | | | | | |
| 07... | 580 | -- | 10 | -- | -- |

09429220 PALO VERDE IRRIGATION DISTRICT OUTFALL DRAIN NEAR PALO VERDE, CA--Continued

PESTICIDE ANALYSES, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | PCB, TOTAL (UG/L) | NAPHTHALENES, POLYCHLOR. TOTAL (UG/L) | ALDRIN, TOTAL (UG/L) | ATRAZINE, TOTAL (UG/L) | CHLORDANE, TOTAL (UG/L) | DDD, TOTAL (UG/L) | DDE, TOTAL (UG/L) | DDT, TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|---|
| DEC | | | | | | | | | |
| 06... | 0915 | .0 | .00 | .00 | .00 | .0 | .00 | .00 | .00 |
| JAN | | | | | | | | | |
| 31... | 1145 | .0 | .00 | .00 | .00 | .0 | .00 | .00 | .00 |
| MAY | | | | | | | | | |
| 02... | 0945 | .0 | .00 | .00 | .00 | .0 | .00 | .00 | .00 |
| JUN | | | | | | | | | |
| 27... | 1000 | .0 | .00 | .00 | .00 | .0 | .00 | .00 | .00 |

| DATE | DIAZINON, TOTAL (UG/L) | DIELDRIN TOTAL (UG/L) | ENDOSULFAN, TOTAL (UG/L) | ENDRIN, TOTAL (UG/L) | ETHION, TOTAL (UG/L) | HEPTACHLOR, TOTAL (UG/L) | HEPTACHLOR EPOXIDE TOTAL (UG/L) | LINDANE TOTAL (UG/L) | MALATHION, TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|---|
| DEC | | | | | | | | | |
| 06... | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| JAN | | | | | | | | | |
| 31... | .03 | .00 | .02 | .00 | .00 | .00 | .00 | .00 | .00 |
| MAY | | | | | | | | | |
| 02... | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| JUN | | | | | | | | | |
| 27... | .01 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |

| DATE | METHYL PARATHION, TOTAL (UG/L) | METHYL TRITHION, TOTAL (UG/L) | PARATHION, TOTAL (UG/L) | TOXAPHENE, TOTAL (UG/L) | TOTAL TRITHION (UG/L) | 2,4-D, TOTAL (UG/L) | 2,4,5-T TOTAL (UG/L) | SILVEX, TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|
| DEC | | | | | | | | |
| 06... | .00 | .00 | .00 | 0 | .00 | .00 | .00 | .00 |
| JAN | | | | | | | | |
| 31... | .01 | .00 | .00 | 0 | .00 | .04 | .00 | .00 |
| MAY | | | | | | | | |
| 02... | .00 | .00 | .00 | 0 | .00 | .03 | .00 | .00 |
| JUN | | | | | | | | |
| 27... | .00 | .00 | .00 | 0 | .00 | .01 | .00 | .00 |

## 09429225 PALO VERDE IRRIGATION DISTRICT ANDERSON DRAIN NEAR PALO VERDE, CA

LOCATION.--Lat 33°21'19", long 114°43'00", in SW¼ sec.36, T.9 S., R.21 E., San Bernardino meridian, Imperial County, Hydrologic Unit 15030104, 0.1 mi (0.2 km) upstream from pump into Outfall drain, and 5.5 mi (8.8 km) south of Palo Verde.

PERIOD OF RECORD.--Water year 1969 (partial-record station), October 1969 to current year.

REMARKS.--Unpublished miscellaneous chemical analyses for water years 1966-68 available from district office in Tucson, Ariz. No flow many days during year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 03... | 1110 | .76 | 1430 | 7.5 | 17.0 | 380 | 190 | 86 | 40 | 190 | 4.2 | 7.3 |
| NOV | | | | | | | | | | | | |
| 01... | 1200 | .80 | 3970 | 7.8 | 20.0 | 600 | 88 | 120 | 72 | 710 | 13 | 7.5 |
| DEC | | | | | | | | | | | | |
| 01... | 1445 | .76 | 2740 | 7.7 | 11.0 | 610 | 200 | 140 | 64 | 410 | 7.2 | 7.1 |
| JUN | | | | | | | | | | | | |
| 01... | 1245 | 1.2 | 2530 | 7.7 | 27.0 | 570 | 160 | 120 | 66 | 400 | 7.3 | 9.5 |

| DATE | BICAR-BONATE (MG/L AS HCO3) | CAR-BONATE (MG/L AS CO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER AC-FT) | BORON, DIS-SOLVED (UG/L AS B) | IRON, DIS-SOLVED (UG/L AS FE) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 03... | 230 | 0 | 380 | 140 | .5 | 14 | 930 | 971 | 1.26 | 240 | 30 |
| NOV | | | | | | | | | | | |
| 01... | 620 | 0 | 920 | 420 | .9 | 21 | 2670 | 2580 | 3.63 | 960 | 30 |
| DEC | | | | | | | | | | | |
| 01... | 500 | 0 | 660 | 270 | .8 | 23 | 1850 | 1820 | 2.52 | 630 | 20 |
| JUN | | | | | | | | | | | |
| 01... | 500 | 0 | 610 | 250 | .7 | 23 | 1670 | 1730 | 2.27 | 610 | 10 |

09429280. CIBOLA LAKE INLET NEAR CIBOLA, AZ.
LOCATION.--Lat 33°15'11", long 114°40'05", in SW¼NE¼ sec.18, T.2 S., R.23 W., Yuma County, Hydrologic Unit 15030104, in Cibola National Wildlife Refuge, below levee on left bank Colorado River at north end of Cibola Lake, 4.4 mi (7.1 km) south of Cibola.

PERIOD OF RECORD.--December 1974 to current year (monthly discharge only).

GAGE.--Two water-stage recorders; one records stage and the other records deflection-meter readings from deflection vane located in concrete flume. Altitude of gage is 205 ft (62.5 m) U.S. Bureau of Reclamation construction data.

REMARKS.--Records fair. Record shows amount of water diverted from Colorado River to Cibola Lake. Daily records are available Nov. 21, 1974 to current year.

09429290. CIBOLA LAKE OUTLET NEAR CIBOLA, AZ.
LOCATION.--Lat 33°13'19", long 114°40'16", in NW¼SE¼ sec.30, T.2 S., R.23 W., Yuma County, Hydrologic Unit 15030104, in Cibola National Wildlife Refuge, at south end of Cibola Lake outlet to Colorado River, 6.5 mi (10.5 km) south of Cibola.

PERIOD OF RECORD.--December 1974 to current year (monthly discharge only).

GAGE.--Water-stage recorder and cipolletti weir in 6-ft (1.8-m) concrete flume. Altitude of gage is 204 ft (62.2 m) U.S. Bureau of Reclamation construction data.

REMARKS.--Records fair. Record shows amount of water returned to Colorado River through controlled outlet. Leakage less than 1 $ft^3/s$ (0.028 $m^3/s$) through adjustable weir is not included in record. During September and October 1976 return flow of 3,820 acre-ft (4.71 $km^3$) was from local runoff. Daily records are available Nov. 21, 1974 to current year.

MONTHLY DISCHARGE, IN ACRE-FEET, WATER YEAR OCTOBER 1974 TO SEPTEMBER 1975

| Month | Cibola Lake Inlet 09429280 | Cibola Lake Outlet 09429290 |
|---|---|---|
| October | -- | -- |
| November | -- | -- |
| December | 0 | 0 |
| CAL YR 1974 | -- | -- |
| January | 0 | 0 |
| February | 361 | 0 |
| March | 885 | 291 |
| April | 1,470 | 1,010 |
| May | 843 | 404 |
| June | 782 | 4.2 |
| July | 1,740 | 525 |
| August | 1,650 | 653 |
| September | 555 | 193 |
| WTR YR 1975 | -- | -- |

MONTHLY DISCHARGE, IN ACRE-FEET, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

| Month | Cibola Lake Inlet 09429280 | Cibola Lake Outlet 09429290 |
|---|---|---|
| October | 101 | 0 |
| November | 34 | 0 |
| December | 147 | 0 |
| CAL YR 1975 | 8,570 | 3,080 |
| January | 135 | 0 |
| February | 423 | 0 |
| March | 1,640 | 684 |
| April | 1,320 | 817 |
| May | 661 | 252 |
| June | 874 | 48 |
| July | 1,560 | 596 |
| August | 1,410 | 683 |
| September | 337 | a2,290 |
| WTR YR 1976 | 8,630 | a5,370 |

MONTHLY DISCHARGE, IN ACRE-FEET, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

| Month | Cibola Lake Inlet 09429280 | Cibola Lake Outlet 09429290 |
|---|---|---|
| October | 0 | c1,870 |
| November | 0 | 0 |
| December | 0 | 0 |
| CAL YR 1976 | 8,350 | b7,240 |
| January | 0 | 0 |
| February | 505 | 0 |
| March | 950 | 11 |
| April | 1,090 | 202 |
| May | 437 | 0 |
| June | 1,030 | 22 |
| July | 1,330 | 494 |
| August | 962 | 477 |
| September | 201 | 0 |
| WTR YR 1977 | 6,510 | c3,080 |

MONTHLY DISCHARGE, IN ACRE-FEET, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| Month | Cibola Lake Inlet 09429280 | Cibola Lake Outlet 09429290 |
|---|---|---|
| October | 53 | 0 |
| November | 14 | 0 |
| December | 104 | 0 |
| CAL YR 1977 | 6,680 | 1,200 |
| January | 0.6 | 0 |
| February | 495 | 0 |
| March | 692 | 83 |
| April | 650 | 466 |
| May | 387 | 7.5 |
| June | 957 | 68 |
| July | 1,070 | 452 |
| August | 730 | 255 |
| September | 1,220 | 2.0 |
| WTR YR 1978 | 6,370 | 1,330 |

a Includes 1,950 acre-feet of local inflow.
b Includes 3,820 acre-feet of local inflow.
c Includes 1,870 acre-feet of local inflow.

## 09429300 COLORADO RIVER BELOW CIBOLA VALLEY, AZ

LOCATION.--Lat 33°13'16", long 114°40'18", in NE¼SW¼ sec.30, T.2 S., R.23 W., Gila and Salt River meridian, Yuma County, Hydrologic Unit 15030104, on left bank 6.7 mi (10.8 km) south of Cibola, 38 mi (61 km) upstream from Imperial Dam, 39.7 mi (63.9 km) downstream from Ehrenberg, Ariz., 52.1 mi (83.8 km) downstream from Palo Verde diversion dam near Blythe, Calif., and at mile 620 (998 km) on Colorado River Profile Survey map.

DRAINAGE AREA.--187,800 $mi^2$ (486,400 $km^2$), approximately, including 3,959 $mi^2$ (10,254 $km^2$) in Great Divide basin in southern Wyoming (previously considered part of the Missouri River basin).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1956 to current year.

GAGE.--Water-stage recorder. Datum of gage is 200.00 ft (60.960 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records excellent. Flow regulated by Lakes Mead, Mohave, and Havasu. Many diversions above station for irrigation, municipal, and industrial uses. See sta 09429000 for return flows from Palo Verde Irrigation District, which enter between sta 09429010 and this station. A portion of the return flows from Colorado River Indian Reservation also enters between these two stations.

AVERAGE DISCHARGE.--22 years, 8,789 $ft^3/s$ (248.9 $m^3/s$), 6,368,000 acre-ft/yr (7,850 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,800 $ft^3/s$ (617 $m^3/s$) Apr. 8, 1958; maximum gage height, 13.60 ft (4.145 m) May 6, 1958; minimum daily discharge, 1,900 $ft^3/s$ (53.8 $m^3/s$) Jan. 18, 1974; minimum gage height, about 4.1 ft (1.25 m), Jan. 18, 1974, based on minimum observed gage height of 4.25 ft (1.295 m) Jan. 14, 1974.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 13,700 $ft^3/s$ (388 $m^3/s$) July 25, gage height, 10.17 ft (3.100 m); minimum daily, 2,260 $ft^3/s$ (64.0 $m^3/s$) Jan. 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5460 | 5380 | 4430 | 2820 | 3150 | 8530 | 11900 | 10300 | 9740 | 11500 | 12100 | 8320 |
| 2 | 5810 | 5770 | 5230 | 2870 | 2580 | 5010 | 11800 | 10000 | 9250 | 11800 | 12000 | 7710 |
| 3 | 6120 | 5120 | 5250 | 3340 | 2470 | 4710 | 13000 | 9490 | 8140 | 11900 | 11700 | 8500 |
| 4 | 6330 | 4740 | 5870 | 3010 | 2460 | 4580 | 12800 | 9290 | 9170 | 12600 | 11300 | 9000 |
| 5 | 6290 | 4110 | 6080 | 2930 | 2930 | 4400 | 12000 | 8350 | 9750 | 12300 | 11300 | 9090 |
| 6 | 6140 | 4330 | 6310 | 2880 | 3420 | 4390 | 11400 | 7850 | 9760 | 11200 | 11800 | 7980 |
| 7 | 6090 | 4700 | 5820 | 2830 | 3340 | 4220 | 10600 | 9100 | 10100 | 10900 | 12600 | 7720 |
| 8 | 3800 | 5390 | 5740 | 2860 | 4500 | 6130 | 10600 | 9650 | 8890 | 10900 | 12700 | 8160 |
| 9 | 3300 | 5470 | 5270 | 2870 | 4170 | 6510 | 11700 | 9760 | 8500 | 12200 | 12600 | 8220 |
| 10 | 4500 | 5460 | 5160 | 2650 | 4200 | 7270 | 12400 | 9310 | 7850 | 12400 | 12200 | 9300 |
| 11 | 4700 | 4790 | 5270 | 2930 | 4350 | 7820 | 12300 | 8170 | 9270 | 12300 | 11700 | 9700 |
| 12 | 4900 | 4420 | 5750 | 2930 | 4920 | 9190 | 12300 | 7590 | 9940 | 12400 | 11800 | 9730 |
| 13 | 4800 | 5390 | 5800 | 2920 | 6050 | 9930 | 11600 | 7740 | 10300 | 12100 | 12000 | 9630 |
| 14 | 4500 | 5840 | 5710 | 2860 | 7590 | 9600 | 10700 | 8460 | 10000 | 11700 | 12100 | 8510 |
| 15 | 4000 | 5570 | 5870 | 2800 | 5770 | 9150 | 11000 | 9400 | 10400 | 11200 | 11000 | 8250 |
| 16 | 5000 | 5130 | 5630 | 2820 | 7240 | 10300 | 11900 | 10400 | 9800 | 11800 | 11100 | 7680 |
| 17 | 5770 | 4430 | 4940 | 2800 | 6670 | 9970 | 12700 | 9920 | 9770 | 12300 | 10800 | 8460 |
| 18 | 5830 | 4040 | 5750 | 2760 | 6280 | 10600 | 12900 | 9390 | 10500 | 12500 | 10300 | 8600 |
| 19 | 6010 | 3860 | 6310 | 2730 | 8640 | 11800 | 12900 | 10100 | 10600 | 12300 | 9650 | 8280 |
| 20 | 5990 | 4870 | 6260 | 2750 | 8740 | 12100 | 12400 | 9570 | 11600 | 12200 | 10000 | 8440 |
| 21 | 5710 | 5850 | 5650 | 2660 | 8710 | 12100 | 11900 | 10700 | 11900 | 11900 | 10700 | 8160 |
| 22 | 4700 | 5550 | 5000 | 2630 | 9220 | 12100 | 11600 | 10800 | 11100 | 12100 | 10700 | 7330 |
| 23 | 5600 | 5110 | 4060 | 2600 | 8960 | 11400 | 12200 | 10400 | 10000 | 12500 | 10200 | 6890 |
| 24 | 5600 | 5230 | 3460 | 2530 | 8600 | 11200 | 13000 | 9570 | 10100 | 12900 | 9650 | 7720 |
| 25 | 5700 | 4250 | 4740 | 2460 | 9130 | 11700 | 12700 | 8700 | 11500 | 13100 | 9040 | 9030 |
| 26 | 5570 | 3740 | 5790 | 2390 | 10400 | 10900 | 12100 | 7790 | 12400 | 11500 | 9080 | 9130 |
| 27 | 5270 | 3760 | 6600 | 2260 | 10100 | 11100 | 10800 | 7570 | 12000 | 11500 | 9740 | 8990 |
| 28 | 4900 | 3660 | 4310 | 3100 | 9030 | 11700 | 9840 | 8630 | 11900 | 10700 | 9680 | 8600 |
| 29 | 4700 | 3780 | 2970 | 3680 | --- | 11700 | 10200 | 9700 | 11500 | 11100 | 9690 | 7820 |
| 30 | 5110 | 3910 | 2900 | 4200 | --- | 12000 | 10600 | 9550 | 11300 | 11500 | 9190 | 7060 |
| 31 | 5570 | --- | 2860 | 4280 | --- | 11900 | --- | 10200 | --- | 12300 | 8640 | --- |
| TOTAL | 163770 | 143650 | 160790 | 90150 | 173620 | 284010 | 353840 | 287450 | 307030 | 369600 | 337060 | 252010 |
| MEAN | 5283 | 4788 | 5187 | 2908 | 6201 | 9162 | 11790 | 9273 | 10230 | 11920 | 10870 | 8400 |
| MAX | 6330 | 5850 | 6600 | 4280 | 10400 | 12100 | 13000 | 10800 | 12400 | 13100 | 12700 | 9730 |
| MIN | 3300 | 3660 | 2860 | 2260 | 2460 | 4220 | 9840 | 7570 | 7850 | 10700 | 8640 | 6890 |
| AC-FT | 324800 | 284900 | 318900 | 178800 | 344400 | 563300 | 701800 | 570200 | 609000 | 733100 | 668600 | 499900 |

CAL YR 1977 TOTAL 2930340 MEAN 8028 MAX 14900 MIN 2860 AC-FT 5812000
WTR YR 1978 TOTAL 2922980 MEAN 8008 MAX 13100 MIN 2260 AC-FT 5798000

09429300 COLORADO RIVER BELOW CIBOLA VALLEY, AZ--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--January 1969 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 03... | 1315 | 6750 | 1360 | 7.9 | -- | 380 | 220 | 94 | 35 | 150 | 3.4 | 5.0 |
| 11... | 0935 | -- | 1400 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 17... | 0830 | -- | 1270 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 25... | 1345 | -- | 1330 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 31... | 1355 | -- | 1360 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | | | | | | | |
| 07... | 0900 | 5340 | 1380 | 7.9 | -- | 390 | 240 | 98 | 36 | 160 | 3.5 | 5.6 |
| 14... | 1315 | -- | 1370 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 21... | 1240 | -- | 1350 | -- | 18.5 | -- | -- | -- | -- | -- | -- | -- |
| 28... | 1320 | -- | 1530 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| DEC | | | | | | | | | | | | |
| 05... | 0830 | 6640 | 1300 | 8.0 | -- | 380 | 240 | 93 | 36 | 140 | 3.1 | 5.1 |
| 12... | 0835 | -- | 1350 | -- | 16.0 | -- | -- | -- | -- | -- | -- | -- |
| 19... | 0835 | -- | 1320 | -- | 14.5 | -- | -- | -- | -- | -- | -- | -- |
| 27... | 0900 | -- | 1260 | -- | 14.5 | -- | -- | -- | -- | -- | -- | -- |
| JAN | | | | | | | | | | | | |
| 03... | 0930 | 3500 | 1600 | 7.9 | -- | 430 | 250 | 110 | 37 | 190 | 4.0 | 5.2 |
| 10... | 1330 | -- | 1690 | -- | 15.0 | -- | -- | -- | -- | -- | -- | -- |
| 16... | 0800 | -- | 1660 | -- | 12.0 | -- | -- | -- | -- | -- | -- | -- |
| 23... | 0900 | -- | 1640 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 30... | 1105 | -- | 1380 | -- | 13.5 | -- | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | | | | | | | |
| 06... | 1005 | 3640 | 1510 | 8.0 | 13.5 | 400 | 240 | 100 | 37 | 180 | 3.9 | 5.0 |
| 13... | 0845 | -- | 1260 | -- | 14.5 | -- | -- | -- | -- | -- | -- | -- |
| 21... | 1240 | -- | 1220 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 27... | 0935 | -- | 1230 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MAR | | | | | | | | | | | | |
| 06... | 0925 | 4700 | 1360 | 8.0 | -- | 370 | 220 | 92 | 35 | 150 | 3.4 | 5.1 |
| 13... | 0830 | -- | 1190 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 20... | 0930 | -- | 1210 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 27... | 0900 | -- | 1180 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| APR | | | | | | | | | | | | |
| 03... | 0945 | 13100 | 1160 | 7.9 | 18.0 | 340 | 200 | 84 | 31 | 120 | 2.8 | 4.9 |
| 10... | 1010 | -- | 1180 | -- | 17.0 | -- | -- | -- | -- | -- | -- | -- |
| 17... | 0940 | -- | 1180 | -- | 18.0 | -- | -- | -- | -- | -- | -- | -- |
| 24... | 1020 | -- | 1180 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MAY | | | | | | | | | | | | |
| 01... | 0935 | 10600 | 1250 | 7.8 | -- | 360 | 210 | 89 | 34 | 130 | 3.0 | 5.5 |
| 08... | 0910 | -- | 1220 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 15... | 0900 | -- | 1220 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 22... | 1300 | -- | 1280 | -- | 20.0 | -- | -- | -- | -- | -- | -- | -- |
| 30... | 0800 | -- | 1230 | -- | 20.0 | -- | -- | -- | -- | -- | -- | -- |
| JUN | | | | | | | | | | | | |
| 05... | 1030 | -- | 1300 | -- | 24.5 | -- | -- | -- | -- | -- | -- | -- |
| 12... | 1115 | 9840 | 1320 | 8.0 | 23.5 | 360 | 230 | 98 | 34 | 150 | 3.3 | 5.5 |
| 19... | 1300 | -- | 1340 | -- | 24.5 | -- | -- | -- | -- | -- | -- | -- |
| 26... | 1030 | -- | 1280 | -- | 26.0 | -- | -- | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | | | | |
| 03... | 0845 | 12100 | 1320 | 7.9 | 25.0 | 360 | 230 | 90 | 32 | 140 | 3.2 | 5.1 |
| 10... | 0915 | -- | 1300 | -- | 25.5 | -- | -- | -- | -- | -- | -- | -- |
| 17... | 0850 | -- | 1270 | -- | 24.5 | -- | -- | -- | -- | -- | -- | -- |
| 24... | 0800 | -- | 1260 | -- | 26.5 | -- | -- | -- | -- | -- | -- | -- |
| 31... | 0945 | -- | 1280 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | | | | |
| 07... | 1000 | 12600 | 1290 | 7.9 | 28.0 | 350 | 210 | 89 | 31 | 140 | 3.3 | 5.3 |
| 14... | 0930 | -- | 1320 | -- | 25.5 | -- | -- | -- | -- | -- | -- | -- |
| 21... | 0910 | -- | 1280 | -- | 25.5 | -- | -- | -- | -- | -- | -- | -- |
| 28... | 1300 | -- | 1370 | -- | 27.0 | -- | -- | -- | -- | -- | -- | -- |
| SEP | | | | | | | | | | | | |
| 05... | 0930 | 9980 | 1260 | 7.9 | 24.5 | 350 | 220 | 86 | 34 | 140 | 3.2 | 5.0 |
| 11... | 0910 | -- | 1230 | -- | 24.0 | -- | -- | -- | -- | -- | -- | -- |
| 18... | 0915 | -- | 1240 | -- | 24.0 | -- | -- | -- | -- | -- | -- | -- |
| 25... | 0930 | -- | 1200 | -- | -- | -- | -- | -- | -- | -- | -- | -- |

09429300 COLORADO RIVER BELOW CIBOLA VALLEY, AZ--Continued

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: March 1956 to December 1966.

INSTRUMENTATION.--Water temperature recorder from March 1956 to December 1966.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | BICARBONATE (MG/L AS HCO3) | CARBONATE (MG/L AS CO3) | SULFATE DISSOLVED (MG/L AS SO4) | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | SOLIDS, DISSOLVED (TONS PER AC-FT) | NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) | BORON, DISSOLVED (UG/L AS B) | IRON, DISSOLVED (UG/L AS FE) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 03... | 190 | 0 | 360 | .5 | 11 | 868 | 889 | 1.18 | -- | 200 | 20 |
| 11... | -- | -- | -- | -- | -- | 888 | -- | 1.21 | -- | -- | -- |
| 17... | -- | -- | -- | -- | -- | 810 | -- | 1.10 | -- | -- | -- |
| 25... | -- | -- | -- | -- | -- | 852 | -- | 1.16 | -- | -- | -- |
| 31... | -- | -- | -- | -- | -- | 866 | -- | 1.18 | -- | -- | -- |
| NOV | | | | | | | | | | | |
| 07... | 190 | 0 | 370 | .5 | 11 | 886 | 915 | 1.20 | -- | 200 | 20 |
| 14... | -- | -- | -- | -- | -- | 878 | -- | 1.19 | -- | -- | -- |
| 21... | -- | -- | -- | -- | -- | 862 | -- | 1.17 | -- | -- | -- |
| 28... | -- | -- | -- | -- | -- | 978 | -- | 1.33 | -- | -- | -- |
| DEC | | | | | | | | | | | |
| 05... | 170 | 0 | 350 | .1 | 11 | 836 | 849 | 1.14 | -- | 190 | 10 |
| 12... | -- | -- | -- | -- | -- | 866 | -- | 1.18 | -- | -- | -- |
| 19... | -- | -- | -- | -- | -- | 836 | -- | 1.14 | -- | -- | -- |
| 27... | -- | -- | -- | -- | -- | 804 | -- | 1.09 | -- | -- | -- |
| JAN | | | | | | | | | | | |
| 03... | 220 | 0 | 390 | .6 | 13 | 1030 | 1030 | 1.40 | -- | 260 | 20 |
| 10... | -- | -- | -- | -- | -- | 1080 | -- | 1.47 | -- | -- | -- |
| 16... | -- | -- | -- | -- | -- | 1070 | -- | 1.46 | -- | -- | -- |
| 23... | -- | -- | -- | -- | -- | 1050 | -- | 1.43 | -- | -- | -- |
| 30... | -- | -- | -- | -- | -- | 880 | -- | 1.20 | -- | -- | -- |
| FEB | | | | | | | | | | | |
| 06... | 200 | 0 | 360 | .5 | 12 | 964 | 963 | 1.31 | -- | 230 | 30 |
| 13... | -- | -- | -- | -- | -- | 804 | -- | 1.09 | -- | -- | -- |
| 21... | -- | -- | -- | -- | -- | 770 | -- | 1.05 | -- | -- | -- |
| 27... | -- | -- | -- | -- | -- | 788 | -- | 1.07 | -- | -- | -- |
| MAR | | | | | | | | | | | |
| 06... | 190 | 0 | 380 | .4 | 9.2 | 866 | 896 | 1.18 | -- | 200 | 10 |
| 13... | -- | -- | -- | -- | -- | 758 | -- | 1.03 | -- | -- | -- |
| 20... | -- | -- | -- | -- | -- | 772 | -- | 1.05 | -- | -- | -- |
| 27... | -- | -- | -- | -- | -- | 758 | -- | 1.03 | -- | -- | -- |
| APR | | | | | | | | | | | |
| 03... | 170 | 0 | 300 | .4 | 9.7 | 742 | 734 | 1.01 | -- | 160 | 10 |
| 10... | -- | -- | -- | -- | -- | 752 | -- | 1.02 | -- | -- | -- |
| 17... | -- | -- | -- | -- | -- | 752 | -- | 1.02 | -- | -- | -- |
| 24... | -- | -- | -- | -- | -- | 752 | -- | 1.02 | -- | -- | -- |
| MAY | | | | | | | | | | | |
| 01... | 180 | 0 | 340 | .4 | 9.8 | 798 | 818 | 1.09 | -- | 170 | 10 |
| 08... | -- | -- | -- | -- | -- | 778 | -- | 1.06 | -- | -- | -- |
| 15... | -- | -- | -- | -- | -- | 776 | -- | 1.06 | -- | -- | -- |
| 22... | -- | -- | -- | -- | -- | 820 | -- | 1.12 | -- | -- | -- |
| 30... | -- | -- | -- | -- | -- | 780 | -- | 1.06 | -- | -- | -- |
| JUN | | | | | | | | | | | |
| 05... | -- | -- | -- | -- | -- | 822 | -- | 1.12 | -- | -- | -- |
| 12... | 180 | -- | 320 | .5 | 11 | 830 | 848 | 1.13 | -- | 190 | 10 |
| 19... | -- | -- | -- | -- | -- | 850 | -- | 1.16 | -- | -- | -- |
| 26... | -- | -- | -- | -- | -- | 828 | -- | 1.13 | -- | -- | -- |
| JUL | | | | | | | | | | | |
| 03... | 160 | 0 | 330 | .4 | 10 | 840 | 817 | 1.14 | .12 | 210 | 30 |
| 10... | -- | -- | -- | -- | -- | 822 | -- | 1.12 | -- | -- | -- |
| 17... | -- | -- | -- | -- | -- | 802 | -- | 1.09 | -- | -- | -- |
| 24... | -- | -- | -- | -- | -- | 796 | -- | 1.08 | -- | -- | -- |
| 31... | -- | -- | -- | -- | -- | 812 | -- | 1.10 | -- | -- | -- |
| AUG | | | | | | | | | | | |
| 07... | 170 | 0 | 330 | .5 | 9.8 | 816 | 820 | 1.11 | .01 | 220 | 20 |
| 14... | -- | -- | -- | -- | -- | 846 | -- | 1.15 | -- | -- | -- |
| 21... | -- | -- | -- | -- | -- | 814 | -- | 1.11 | -- | -- | -- |
| 28... | -- | -- | -- | -- | -- | 876 | -- | 1.19 | -- | -- | -- |
| SEP | | | | | | | | | | | |
| 05... | 170 | 0 | 320 | .6 | 9.0 | 810 | 799 | 1.10 | .02 | 200 | 20 |
| 11... | -- | -- | -- | -- | -- | 786 | -- | 1.07 | -- | -- | -- |
| 18... | -- | -- | -- | -- | -- | 788 | -- | 1.07 | -- | -- | -- |
| 25... | -- | -- | -- | -- | -- | 768 | -- | 1.04 | -- | -- | -- |

## 09429490 COLORADO RIVER ABOVE IMPERIAL DAM, AZ-CA

(National stream-quality accounting network, pesticide, radiochemical, and tritium network station)

LOCATION.--Lat 32°52'59", long 114°27'55", at Imperial Dam. The Arizona end of the dam is in SW¼NW¼ sec.30, T.6 S., R.21 W., Gila and Salt River meridian, Yuma County, Hydrologic Unit 15030104; the California end is in NW¼SW¼ sec.9, T.15 S., R.24 E., San Bernardino meridian, Imperial County, Hydrologic Unit 15030104. Imperial Dam is 5 mi (8 km) upstream from Laguna Dam, 15 mi (24 km) northeast of Yuma, Ariz., 90 mi (145 km) downstream from Palo Verde Dam, and 147 mi (237 km) downstream from Parker Dam.

DRAINAGE AREA.--188,500 $mi^2$ (488,200 $km^2$), approximately, including 3,959 $mi^2$ (10,254 $km^2$) in Great Divide basin in southern Wyoming, which is noncontributing (previously considered part of the Missouri River basin).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--1903-34 (yearly discharge only, published in WSP 1313), July 1934 to current year (monthly discharge only since October 1942). Prior to October 1942 published as "near Picacho, Calif." October 1942 to September 1971 published as "at Imperial Dam" (monthly discharge shown as "flow reaching Imperial Dam," listed as supplement to "flow passing Imperial Dam").

GAGE.--None. This record is synthesized from records of several other stations (see REMARKS). July 13, 1934, to Sept. 30, 1942, water-stage recorder at site 14.5 mi (23.3 km) upstream at datum 167.38 ft (51.017 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records show flow of Colorado River reaching Imperial Dam, and are based on combined monthly total flow of Colorado River below Imperial Dam (sta 09429500), All-American Canal near Imperial Dam (sta 09523000), Gila Gravity Main Canal at Imperial Dam (sta 09522500), and diversions to Mittry Lake (sta 09522400). Records for 1903-34 and for October 1942 to September 1960 were computed as combined flow of Colorado River at Yuma (sta 09521000) and the canals diverting at Imperial and Laguna Dams, less the flow of Gila River near Dome (sta 09520500); for some of these periods drainage and waste return flows and channel losses between the gaging stations and Imperial Dam were considered, and for other periods they were neglected. Records for July 1934 to September 1942 show daily discharge of Colorado River at gaging station near Picacho, Calif.

Natural flow of Colorado River at this point affected by transmountain diversions, storage reservoirs, power developments, ground-water withdrawals, and diversions for irrigation, municipal, and industrial uses, and return flows from irrigated areas. Diversions to Mittry Lake, which began June 23, 1970, are included in river records in table below. Additional regulation, beginning Jan. 31, 1966, to equalize supplies for downstream water users, is provided by pumped storage in reservoir on Senator Wash, about 2 mi (3 km) upstream from Imperial Dam. Monthend contents of Senator Wash Reservoir—capacity, 13,840 acre-ft (17.1 $hm^3$)—is given in table below.

COOPERATION.--Records of Sparling meter readings of diversion to Mittry Lake and contents of Senator Wash Reservoir furnished by Bureau of Reclamation.

AVERAGE DISCHARGE.--44 years (water years 1935-78), 10,970 $ft^3/s$ (310.7 $m^3/s$), 7,948,000 acre-ft/yr (9,800 $hm^3/yr$).

EXTREMES FOR PERIOD OF 1934-78.--Maximum discharge, 40,800 $ft^3/s$ (1,160 $m^3/s$) Sept. 5, 1939; minimum, 538 $ft^3/s$ (15.2 $m^3/s$) Aug. 3, 1934; minimum daily since regulation of Hoover Dam began, 1,450 $ft^3/s$ (41.1 $m^3/s$) Feb. 17, 1935.

09429490 COLORADO RIVER ABOVE IMPERIAL DAM, AZ-CA--Continued

COLORADO RIVER ABOVE IMPERIAL DAM, DIVERSIONS TO MITTRY LAKE, AND MONTHEND CONTENTS OF SENATOR WASH RESERVOIR, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| Month | Discharge of Colorado River | | Diversions to Mittry Lake (acre-feet)* (09522400) | Monthend contents, Senator Wash Reservoir (acre-feet) |
|---|---|---|---|---|
| | Mean (cubic feet per second) | Runoff (acre-feet) | | |
| October | 5,292 | 325,400 | 575 | 5,030 |
| November | 4,658 | 277,200 | 493 | 8,510 |
| December | 5,035 | 309,600 | 612 | 13,660 |
| CAL YR 1977 | 7,880 | 5,705,000 | 7,380 | ----- |
| January | 2,778 | 170,800 | 595 | 11,120 |
| February | 6,123 | 340,100 | 522 | 6,890 |
| March | 8,948 | 550,200 | 547 | 6,37 |
| April | 11,720 | 697,500 | 365 | 5,89[illegible] |
| May | 9,163 | 563,400 | 389 | 6,270 |
| June | 9,904 | 589,300 | 615 | 6,660 |
| July | 11,510 | 707,500 | 618 | 8,850 |
| August | 10,800 | 664,100 | 619 | 6,510 |
| September | 8,422 | 501,100 | 587 | 4,120 |
| WTR YR 1978 | 7,868 | 5,696,000 | 6,540 | ----- |

* Included in first two columns of table.

NOTE.--Discharge of Colorado River, in first two columns of table above, is combined discharge of Colorado River below Imperial Dam (sta 09429500) and diversions to All-American Canal, Gila Gravity Main Canal, and Mittry Lake.

09429490 COLORADO RIVER ABOVE IMPERIAL DAM, AZ-CA--Continued

WATER-QUALITY RECORDS

LOCATION.--Water samples collected above trash racks at All-American Canal headworks at west end of Imperial Dam.

PERIOD OF RECORD.--August 1969 to current year.
Prior to October 1971, published as sta 09429500, Colorado River at Imperial Dam, Ariz.-Calif.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1969 to current year.
WATER TEMPERATURES: October 1974 to current year.

REMARKS.--Replaces water-quality station 09525500 Yuma Main Canal below Colorado River Siphon, at Yuma, Ariz. Stream discharges reported with analyses represent total flow reaching Imperial Dam. Since January 1971, daily specific-conductance measurements have been made using a composite of four water samples taken at 6-hour intervals. Composites of four water samples per day are analyzed for major chemical constituents weekly.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW (CFS) | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | TUR-BID-ITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) | COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) | STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) | HARD-NESS (MG/L AS CACO3) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 03... | -- | 5950 | -- | 1350 | 8.3 | -- | 4.0 | -- | -- | -- | -- | 370 |
| 05... | 0915 | -- | 6750 | 1260 | 8.0 | 24.5 | -- | 8.0 | 17 | 28 | 42 | -- |
| 10... | -- | 4760 | -- | 1390 | 8.0 | -- | 3.0 | -- | -- | -- | -- | 365 |
| 17... | -- | 4990 | -- | 1410 | 7.9 | -- | 3.0 | -- | -- | -- | -- | 375 |
| 18... | 1030 | -- | 5290 | -- | -- | 23.5 | -- | -- | 19 | -- | -- | -- |
| 24... | -- | 5500 | -- | 1350 | 7.9 | -- | 2.0 | -- | -- | -- | -- | 370 |
| 31... | -- | 4980 | -- | 1360 | 8.0 | -- | 2.0 | -- | -- | -- | -- | 370 |
| NOV | | | | | | | | | | | | |
| 07... | -- | 4540 | -- | 1400 | 8.0 | -- | 3.0 | -- | -- | -- | -- | 375 |
| 09... | 0915 | -- | 5020 | 1360 | 8.2 | 17.5 | -- | 8.5 | 16 | 87 | 89 | -- |
| 14... | -- | 5050 | -- | 1380 | 7.9 | -- | 2.0 | -- | -- | -- | -- | 375 |
| 21... | -- | 5120 | -- | 1410 | 7.9 | -- | 2.0 | -- | -- | -- | -- | 375 |
| 21... | 1130 | -- | 5183 | -- | -- | 15.0 | -- | -- | 35 | -- | -- | -- |
| 28... | -- | 3880 | -- | 1470 | 8.0 | -- | 2.0 | -- | -- | -- | -- | 395 |
| DEC | | | | | | | | | | | | |
| 05... | -- | 5210 | -- | 1310 | 7.9 | -- | 2.0 | -- | -- | -- | -- | 370 |
| 07... | 0900 | -- | 5680 | 1320 | 7.8 | 15.0 | -- | 8.8 | 39 | 27 | 130 | -- |
| 12... | -- | 5670 | -- | 1340 | 7.9 | -- | 1.0 | -- | -- | -- | -- | 370 |
| 19... | -- | 6040 | -- | 1320 | 7.9 | -- | 2.0 | -- | -- | -- | -- | 370 |
| 19... | 1105 | -- | 6050 | -- | -- | 13.0 | -- | -- | 0 | -- | -- | -- |
| 26... | -- | 3680 | -- | 1490 | 8.0 | -- | 2.0 | -- | -- | -- | -- | 405 |
| JAN | | | | | | | | | | | | |
| 02... | -- | 2190 | -- | 1630 | 7.9 | -- | -- | -- | -- | -- | -- | 430 |
| 09... | -- | 2540 | -- | 1630 | 8.0 | -- | 2.0 | -- | -- | -- | -- | 430 |
| 11... | 0900 | -- | 2540 | 1560 | 7.9 | 12.0 | -- | 9.8 | 62 | 280 | 1000 | -- |
| 16... | -- | 2560 | -- | 1520 | 7.9 | -- | 2.0 | -- | -- | -- | -- | 395 |
| 23... | -- | 2480 | -- | 1530 | 8.0 | -- | 1.0 | -- | -- | -- | -- | 410 |
| 24... | 1105 | -- | 2020 | -- | -- | 12.5 | -- | -- | 20 | -- | -- | -- |
| 30... | -- | 3880 | -- | 1520 | 7.9 | -- | 2.0 | -- | -- | -- | -- | 405 |
| FEB | | | | | | | | | | | | |
| 06... | -- | 3720 | -- | 1480 | 8.1 | -- | 2.0 | -- | -- | -- | -- | 395 |
| 08... | 0910 | -- | 4020 | 1390 | 8.0 | 15.5 | -- | 9.7 | 31 | 67 | 26 | -- |
| 13... | -- | 5350 | -- | 1310 | 8.1 | -- | 1.0 | -- | -- | -- | -- | 370 |
| 20... | -- | 8360 | -- | 1190 | 8.0 | -- | 7.0 | -- | -- | -- | -- | 350 |
| 21... | 1050 | -- | 8680 | -- | -- | 14.0 | -- | -- | 19 | -- | -- | -- |
| 27... | -- | 9070 | -- | 1190 | 8.0 | -- | 6.0 | -- | -- | -- | -- | 350 |
| MAR | | | | | | | | | | | | |
| 06... | -- | 4680 | -- | 1340 | 8.0 | -- | 2.0 | -- | -- | -- | -- | 370 |
| 08... | 0830 | -- | 6140 | 1390 | 8.0 | 17.5 | -- | 8.1 | 21 | 100 | 150 | -- |
| 13... | -- | 8760 | -- | 1190 | 8.0 | -- | 8.0 | -- | -- | -- | -- | 350 |

09429490 COLORADO RIVER ABOVE IMPERIAL DAM, AZ-CA--Continued

COOPERATION.--Daily water temperature record furnished by Bureau of Reclamation.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,880 micromhos Nov. 21, 1969; minimum daily, 939 micromhos Sept. 26, 1976.
WATER TEMPERATURES: Maximum daily, 33.0°C Aug. 20, 1977; minimum daily, 9.0°C Dec. 26, 1974, Jan. 4, 1976.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,640 micromhos Jan. 3, 4; minimum daily, 1,160 micromhos Mar. 19.
WATER TEMPERATURES: Maximum daily, 32.0°C July 28, 29, 30; minimum daily, 13.0°C Dec. 22, 23, 24.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | HARDNESS, NONCARBONATE (MG/L CACO3) | CALCIUM TOTAL RECOVERABLE (MG/L AS CA) | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, TOTAL RECOVERABLE (MG/L AS NA) | SODIUM, DISSOLVED (MG/L AS NA) | SODIUM ADSORPTION RATIO | POTASSIUM, TOTAL RECOVERABLE (MG/L AS K) | POTASSIUM, DISSOLVED (MG/L AS K) | BICARBONATE (MG/L AS HCO3) | CARBONATE (MG/L AS CO3) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 03... | 216 | -- | 94 | -- | 33 | -- | 150 | 3.4 | -- | 5.8 | 188 | 0 |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 10... | 211 | -- | 93 | -- | 32 | -- | 160 | 3.6 | -- | 5.8 | 188 | 0 |
| 17... | 216 | -- | 94 | -- | 34 | -- | 160 | 3.6 | -- | 5.7 | 194 | 0 |
| 18... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 24... | 219 | -- | 94 | -- | 33 | -- | 150 | 3.4 | -- | 5.2 | 184 | 0 |
| 31... | 216 | -- | 92 | -- | 34 | -- | 150 | 3.4 | -- | 5.4 | 188 | 0 |
| NOV | | | | | | | | | | | | |
| 07... | 214 | -- | 94 | -- | 34 | -- | 160 | 3.6 | -- | 5.6 | 196 | 0 |
| 09... | -- | 85 | -- | 34 | -- | 130 | -- | -- | 4.9 | 5.2 | -- | -- |
| 14... | 219 | -- | 94 | -- | 34 | -- | 155 | 3.5 | -- | 5.4 | 190 | 0 |
| 21... | 218 | -- | 95 | -- | 34 | -- | 160 | 3.6 | -- | 5.5 | 192 | 0 |
| 21... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 28... | 228 | -- | 99 | -- | 36 | -- | 170 | 3.7 | -- | 5.2 | 204 | 0 |
| DEC | | | | | | | | | | | | |
| 05... | 218 | -- | 91 | -- | 35 | -- | 140 | 3.2 | -- | 5.2 | 186 | 0 |
| 07... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 12... | 218 | -- | 93 | -- | 34 | -- | 145 | 3.3 | -- | 5.3 | 186 | 0 |
| 19... | 218 | -- | 93 | -- | 34 | -- | 145 | 3.3 | -- | 5.5 | 186 | 0 |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 26... | 236 | -- | 104 | -- | 35 | -- | 170 | 3.7 | -- | 5.6 | 206 | 0 |
| JAN | | | | | | | | | | | | |
| 02... | 248 | -- | 109 | -- | 38 | -- | 190 | 4.0 | -- | 5.5 | 222 | 0 |
| 09... | 248 | -- | 109 | -- | 38 | -- | 190 | 4.0 | -- | 5.5 | 222 | 0 |
| 11... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 16... | 228 | -- | 102 | -- | 34 | -- | 180 | 3.9 | -- | 5.4 | 204 | 0 |
| 23... | 240 | -- | 103 | -- | 37 | -- | 175 | 3.8 | -- | 5.4 | 208 | 0 |
| 24... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 30... | 234 | -- | 101 | -- | 37 | -- | 175 | 3.8 | -- | 5.4 | 208 | 0 |
| FEB | | | | | | | | | | | | |
| 06... | 228 | -- | 98 | -- | 37 | -- | 170 | 3.7 | -- | 5.2 | 204 | 0 |
| 08... | -- | 94 | -- | 35 | -- | 150 | -- | -- | 5.4 | -- | -- | -- |
| 13... | 219 | -- | 90 | -- | 35 | -- | 140 | 3.2 | -- | 5.3 | 184 | 0 |
| 20... | 210 | -- | 86 | -- | 33 | -- | 120 | 2.8 | -- | 5.1 | 170 | 0 |
| 21... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 27... | 209 | -- | 86 | -- | 33 | -- | 120 | 2.8 | -- | 5.4 | 172 | 0 |
| MAR | | | | | | | | | | | | |
| 06... | 212 | -- | 94 | -- | 33 | -- | 145 | 3.3 | -- | 5.3 | 192 | 0 |
| 08... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 13... | 208 | -- | 87 | -- | 32 | -- | 120 | 2.8 | -- | 5.3 | 174 | 0 |

09429490 COLORADO RIVER ABOVE IMPERIAL DAM, AZ-CA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) | SOLIDS, RESIDUE AT 105 DEG. C, DIS-SOLVED (MG/L) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER AC-FT) | SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) | NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 03... | 345 | 130 | .5 | 10 | 866 | -- | 862 | 1.18 | -- | -- | .09 |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | 20 | .12 | -- |
| 10... | 350 | 142 | .5 | 8.2 | 882 | -- | 885 | 1.20 | -- | -- | .09 |
| 17... | 355 | 142 | .5 | 10 | 902 | -- | 898 | 1.23 | -- | -- | .09 |
| 18... | -- | -- | -- | -- | -- | -- | -- | -- | 74 | .08 | -- |
| 24... | 345 | 132 | .6 | 10 | 858 | -- | 861 | 1.17 | -- | -- | .11 |
| 31... | 345 | 135 | .5 | 10 | 866 | -- | 866 | 1.18 | -- | -- | .14 |
| NOV | | | | | | | | | | | |
| 07... | 355 | 140 | .4 | 11 | 894 | -- | 898 | 1.22 | -- | -- | .14 |
| 09... | -- | -- | -- | -- | -- | 880 | -- | -- | 11 | .12 | -- |
| 14... | 350 | 138 | .5 | 9.2 | 884 | -- | 881 | 1.20 | -- | -- | .14 |
| 21... | 355 | 142 | .4 | 10 | 902 | -- | 898 | 1.23 | -- | -- | .14 |
| 21... | -- | -- | -- | -- | -- | -- | -- | -- | 10 | .14 | -- |
| 28... | 370 | 152 | .5 | 9.0 | 936 | -- | 943 | 1.27 | -- | -- | .16 |
| DEC | | | | | | | | | | | |
| 05... | 340 | 125 | .5 | 7.8 | 840 | -- | 837 | 1.14 | -- | -- | .16 |
| 07... | -- | -- | -- | -- | -- | -- | -- | -- | 14 | .18 | -- |
| 12... | 345 | 130 | .5 | 9.2 | 858 | -- | 855 | 1.17 | -- | -- | .18 |
| 19... | 340 | 128 | .5 | 8.8 | 846 | -- | 847 | 1.15 | -- | -- | .14 |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- | 24 | .21 | -- |
| 26... | 370 | 158 | .5 | 9.2 | 958 | -- | 954 | 1.30 | -- | -- | .23 |
| JAN | | | | | | | | | | | |
| 02... | 390 | 182 | .5 | 11 | 1050 | -- | 1040 | 1.43 | -- | -- | .18 |
| 09... | 390 | 182 | .5 | 11 | 1050 | -- | 1040 | 1.43 | -- | -- | .14 |
| 11... | -- | -- | -- | -- | -- | -- | -- | -- | 8 | .23 | -- |
| 16... | 370 | 168 | .5 | 9.5 | 974 | -- | 970 | 1.32 | -- | -- | .18 |
| 23... | 370 | 170 | .5 | 10 | 982 | -- | 974 | 1.34 | -- | -- | .14 |
| 24... | -- | -- | -- | -- | -- | -- | -- | -- | 25 | .13 | -- |
| 30... | 370 | 165 | .5 | 9.5 | 970 | -- | 966 | 1.32 | -- | -- | .16 |
| FEB | | | | | | | | | | | |
| 06... | 365 | 160 | .5 | 9.0 | 946 | -- | 946 | 1.29 | -- | -- | .18 |
| 08... | -- | -- | -- | -- | -- | -- | -- | -- | 40 | .19 | -- |
| 13... | 335 | 128 | .5 | 8.0 | 842 | -- | 833 | 1.15 | -- | -- | .11 |
| 20... | 310 | 108 | .5 | 8.5 | 758 | -- | 756 | 1.03 | -- | -- | .27 |
| 21... | -- | -- | -- | -- | -- | -- | -- | -- | 65 | .20 | -- |
| 27... | 310 | 108 | .5 | 9.5 | 756 | -- | 758 | 1.03 | -- | -- | .20 |
| MAR | | | | | | | | | | | |
| 06... | 340 | 130 | .6 | 10 | 856 | -- | 854 | 1.16 | -- | -- | .20 |
| 08... | -- | -- | -- | -- | -- | -- | -- | -- | 25 | .19 | -- |
| 13... | 310 | 108 | .4 | 8.0 | 760 | -- | 758 | 1.03 | -- | -- | .29 |

09429490 COLORADO RIVER ABOVE IMPERIAL DAM, AZ-CA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | NITROGEN, NITRITE TOTAL (MG/L AS N) | NITROGEN, NITRITE DISSOLVED (MG/L AS N) | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) | NITROGEN, AMMONIA TOTAL (MG/L AS N) | NITROGEN, ORGANIC TOTAL (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | NITROGEN, TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | PHOSPHORUS, DISSOLVED (MG/L AS P) | PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 03... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 05... | .00 | .00 | .12 | .14 | .00 | .28 | .28 | .40 | .03 | -- | .01 |
| 10... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 17... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 18... | .00 | -- | .08 | -- | .01 | .30 | .31 | .39 | .03 | -- | -- |
| 24... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 31... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | | | | | | |
| 07... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 09... | .00 | .00 | .12 | .15 | .05 | .29 | .34 | .46 | .02 | .00 | .00 |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 21... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 21... | .01 | -- | .15 | -- | .03 | .38 | .41 | .56 | .03 | -- | -- |
| 28... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| DEC | | | | | | | | | | | |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 07... | .00 | .00 | .18 | .16 | .04 | .19 | .23 | .41 | .02 | -- | .00 |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 19... | .01 | -- | .22 | -- | .11 | .68 | .79 | 1.0 | .02 | -- | -- |
| 26... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JAN | | | | | | | | | | | |
| 02... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 09... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 11... | .01 | .00 | .24 | .26 | .08 | .30 | .38 | .62 | .03 | -- | .01 |
| 16... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 23... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 24... | .01 | -- | .14 | -- | .01 | .18 | .19 | .33 | .04 | -- | -- |
| 30... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | | | | | | |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 08... | .01 | .00 | .20 | .20 | .03 | .33 | .36 | .56 | .02 | .01 | .02 |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 20... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 21... | .01 | -- | .21 | -- | .06 | .39 | .45 | .66 | .07 | -- | -- |
| 27... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MAR | | | | | | | | | | | |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 08... | .01 | .00 | .20 | .20 | .03 | .48 | .51 | .71 | .04 | -- | .00 |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

09429490 COLORADO RIVER ABOVE IMPERIAL DAM, AZ-CA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW (CFS) | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | TUR-BID-ITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) | COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) | STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) | HARD-NESS (MG/L AS CACO3) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MAR | | | | | | | | | | | | |
| 20... | -- | 11200 | -- | 1170 | 8.0 | -- | 4.0 | -- | -- | -- | -- | 340 |
| 21... | 1100 | -- | 11600 | -- | -- | 19.5 | -- | -- | 29 | -- | -- | -- |
| 27... | -- | 9890 | -- | 1200 | 8.1 | -- | 6.0 | -- | -- | -- | -- | 345 |
| APR | | | | | | | | | | | | |
| 03... | -- | 11600 | -- | 1190 | 8.2 | -- | 3.0 | -- | -- | -- | -- | 345 |
| 10... | -- | 11400 | -- | 1200 | 8.1 | -- | 2.0 | -- | -- | -- | -- | 345 |
| 12... | 0930 | -- | 12300 | 1230 | 8.1 | 20.0 | -- | 7.2 | 17 | K15 | 43 | -- |
| 17... | -- | 11900 | -- | 1210 | 8.0 | -- | 4.0 | -- | -- | -- | -- | 350 |
| 24... | -- | 12200 | -- | 1210 | 8.0 | -- | 7.0 | -- | -- | -- | -- | 350 |
| 25... | 1000 | -- | 12400 | -- | -- | 20.5 | -- | -- | 18 | -- | -- | -- |
| MAY | | | | | | | | | | | | |
| 01... | -- | 10400 | -- | 1230 | 7.9 | -- | 4.0 | -- | -- | -- | -- | 350 |
| 08... | -- | 8460 | -- | 1280 | 7.9 | -- | 4.0 | -- | -- | -- | -- | 365 |
| 10... | 0905 | -- | 9410 | 1270 | 8.0 | 22.5 | -- | 8.1 | 17 | K15 | 52 | -- |
| 15... | -- | 8890 | -- | 1270 | 8.1 | -- | 3.0 | -- | -- | -- | -- | 360 |
| 22... | -- | 9980 | -- | 1230 | 8.0 | -- | 2.0 | -- | -- | -- | -- | 350 |
| 23... | 1115 | -- | 10270 | -- | -- | 24.0 | -- | -- | 17 | -- | -- | -- |
| 29... | -- | 8540 | -- | 1280 | 8.0 | -- | 3.0 | -- | -- | -- | -- | 365 |
| JUN | | | | | | | | | | | | |
| 05... | -- | 8690 | -- | 1270 | 8.0 | -- | 3.0 | -- | -- | -- | -- | 360 |
| 12... | -- | 9110 | -- | 1280 | 8.0 | -- | 2.0 | -- | -- | -- | -- | 365 |
| 14... | 0915 | -- | 9900 | 1300 | 8.0 | 27.0 | -- | 7.2 | 29 | 26 | 33 | -- |
| 19... | -- | 9860 | -- | 1240 | 8.0 | -- | 1.0 | -- | -- | -- | -- | 355 |
| 26... | -- | 10700 | -- | 1230 | 7.8 | -- | 2.0 | -- | -- | -- | -- | 350 |
| 26... | 1100 | -- | 10700 | -- | -- | 28.0 | -- | -- | 13 | -- | -- | -- |
| JUL | | | | | | | | | | | | |
| 03... | -- | 11100 | -- | 1240 | 7.8 | -- | 1.0 | -- | -- | -- | -- | 355 |
| 10... | -- | 11400 | -- | 1210 | 7.9 | -- | 1.0 | -- | -- | -- | -- | 350 |
| 12... | 0930 | -- | 12400 | 1270 | 8.0 | 27.5 | -- | 7.6 | 10 | 30 | 22 | -- |
| 17... | -- | 11700 | -- | 1250 | 7.9 | -- | 2.0 | -- | -- | -- | -- | 350 |
| 24... | -- | 11700 | -- | 1240 | 7.9 | -- | 2.0 | -- | -- | -- | -- | 350 |
| 24... | 1110 | -- | 11900 | -- | -- | 29.5 | -- | -- | 20 | -- | -- | -- |
| 31... | -- | 11100 | -- | 1240 | 7.9 | -- | 4.0 | -- | -- | -- | -- | 350 |
| AUG | | | | | | | | | | | | |
| 07... | -- | 11600 | -- | 1250 | 8.0 | -- | 2.0 | -- | -- | -- | -- | 355 |
| 09... | 0900 | -- | 20000 | 1300 | 7.9 | 30.0 | -- | 6.6 | 35 | 32 | 49 | -- |
| 14... | -- | 11300 | -- | 1240 | 7.9 | -- | 1.0 | -- | -- | -- | -- | 350 |
| 21... | -- | 9930 | -- | 1270 | 8.0 | -- | 1.0 | -- | -- | -- | -- | 360 |
| 28... | -- | 9510 | -- | 1270 | 8.0 | -- | 2.0 | -- | -- | -- | -- | 360 |
| 28... | 1115 | -- | 9600 | -- | -- | 28.5 | -- | -- | 14 | -- | -- | -- |

K Based on non-ideal colony count.

09429490 COLORADO RIVER ABOVE IMPERIAL DAM, AZ-CA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | HARDNESS, NONCARBONATE (MG/L CACO3) | CALCIUM TOTAL RECOVERABLE (MG/L AS CA) | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, TOTAL RECOVERABLE (MG/L AS NA) | SODIUM, DISSOLVED (MG/L AS NA) | SODIUM ADSORPTION RATIO | POTASSIUM, TOTAL RECOVERABLE (MG/L AS K) | POTASSIUM, DISSOLVED (MG/L AS K) | BICARBONATE (MG/L AS HCO3) | CARBONATE (MG/L AS CO3) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MAR | | | | | | | | | | | | |
| 20... | 199 | -- | 86 | -- | 31 | -- | 120 | 2.8 | -- | 5.2 | 172 | 0 |
| 21... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 27... | 200 | -- | 88 | -- | 31 | -- | 125 | 2.9 | -- | 5.2 | 176 | 0 |
| APR | | | | | | | | | | | | |
| 03... | 204 | -- | 90 | -- | 29 | -- | 120 | 2.8 | -- | 5.3 | 172 | 0 |
| 10... | 198 | -- | 89 | -- | 30 | -- | 125 | 2.9 | -- | 5.3 | 180 | 0 |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 17... | 202 | -- | 91 | -- | 30 | -- | 125 | 2.9 | -- | 5.3 | 180 | 0 |
| 24... | 202 | -- | 90 | -- | 31 | -- | 125 | 2.9 | -- | 5.2 | 180 | 0 |
| 25... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MAY | | | | | | | | | | | | |
| 01... | 199 | -- | 90 | -- | 31 | -- | 130 | 3.0 | -- | 5.4 | 184 | 0 |
| 08... | 202 | -- | 94 | -- | 32 | -- | 135 | 3.1 | -- | 5.5 | 198 | 0 |
| 10... | -- | 90 | -- | 33 | -- | 130 | -- | -- | 5.0 | -- | -- | -- |
| 15... | 204 | -- | 94 | -- | 31 | -- | 135 | 3.1 | -- | 5.4 | 190 | 0 |
| 22... | 199 | -- | 90 | -- | 31 | -- | 130 | 3.0 | -- | 5.4 | 184 | 0 |
| 23... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 29... | 209 | -- | 94 | -- | 32 | -- | 135 | 3.1 | -- | 5.2 | 190 | 0 |
| JUN | | | | | | | | | | | | |
| 05... | 204 | -- | 92 | -- | 32 | -- | 135 | 3.1 | -- | 5.4 | 190 | 0 |
| 12... | 211 | -- | 92 | -- | 33 | -- | 135 | 3.1 | -- | 5.5 | 188 | 0 |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 19... | 206 | -- | 92 | -- | 31 | -- | 130 | 3.0 | -- | 5.4 | 182 | 0 |
| 26... | 202 | -- | 94 | -- | 28 | -- | 130 | 3.0 | -- | 5.3 | 180 | 0 |
| 26... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | | | | |
| 03... | 206 | -- | 93 | -- | 30 | -- | 130 | 3.0 | -- | 5.4 | 182 | 0 |
| 10... | 208 | -- | 87 | -- | 32 | -- | 125 | 2.9 | -- | 5.5 | 174 | 0 |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 17... | 202 | -- | 90 | -- | 31 | -- | 135 | 3.1 | -- | 5.4 | 180 | 0 |
| 24... | 206 | -- | 89 | -- | 31 | -- | 130 | 3.0 | -- | 5.4 | 176 | 0 |
| 24... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 31... | 204 | -- | 90 | -- | 31 | -- | 130 | 3.0 | -- | 5.4 | 178 | 0 |
| AUG | | | | | | | | | | | | |
| 07... | 212 | -- | 90 | -- | 32 | -- | 130 | 3.0 | -- | 5.4 | 174 | 0 |
| 09... | -- | 83 | -- | 33 | -- | 130 | -- | -- | 4.7 | -- | -- | -- |
| 14... | 204 | -- | 90 | -- | 31 | -- | 130 | 3.0 | -- | 5.4 | 178 | 0 |
| 21... | 211 | -- | 92 | -- | 32 | -- | 135 | 3.1 | -- | 5.5 | 182 | 0 |
| 28... | 211 | -- | 90 | -- | 33 | -- | 135 | 3.1 | -- | 5.5 | 182 | 0 |
| 28... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

09429490 COLORADO RIVER ABOVE IMPERIAL DAM, AZ-CA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | SULFATE DIS- SOLVED (MG/L AS SO4) | CHLO- RIDE, DIS- SOLVED (MG/L AS CL) | FLUO- RIDE, DIS- SOLVED (MG/L AS F) | SILICA, DIS- SOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) | SOLIDS, RESIDUE AT 105 DEG. C, DIS- SOLVED (MG/L) | SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) | SOLIDS, DIS- SOLVED (TONS PER AC-FT) | SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDED (MG/L) | NITRO- GEN, NITRATE TOTAL (MG/L AS N) | NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAR | | | | | | | | | | | |
| 20... | 305 | 105 | .4 | 8.2 | 748 | -- | 746 | 1.02 | -- | -- | .16 |
| 21... | -- | -- | -- | -- | -- | -- | -- | -- | 53 | .10 | -- |
| 27... | 310 | 108 | .5 | 8.1 | 762 | -- | 763 | 1.04 | -- | -- | .11 |
| APR | | | | | | | | | | | |
| 03... | 310 | 108 | .4 | 7.5 | 758 | -- | 756 | 1.03 | -- | -- | .07 |
| 10... | 310 | 108 | .5 | 9.0 | 768 | -- | 766 | 1.04 | -- | -- | .07 |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | 15 | .08 | -- |
| 17... | 310 | 110 | .3 | 7.8 | 770 | -- | 769 | 1.05 | -- | -- | .07 |
| 24... | 315 | 108 | .5 | 8.5 | 770 | -- | 772 | 1.05 | -- | -- | .07 |
| 25... | -- | -- | -- | -- | -- | -- | -- | -- | 19 | .16 | -- |
| MAY | | | | | | | | | | | |
| 01... | 315 | 112 | .6 | 7.5 | 784 | -- | 783 | 1.07 | -- | -- | .07 |
| 08... | 320 | 120 | .4 | 8.0 | 814 | -- | 814 | 1.11 | -- | -- | .14 |
| 10... | -- | -- | -- | -- | -- | 808 | -- | -- | 19 | .09 | -- |
| 15... | 320 | 120 | .5 | 7.8 | 810 | -- | 808 | 1.10 | -- | -- | .11 |
| 22... | 315 | 112 | .5 | 8.2 | 782 | -- | 784 | 1.06 | -- | -- | .18 |
| 23... | -- | -- | -- | -- | -- | -- | -- | -- | 29 | .10 | -- |
| 29... | 325 | 120 | .5 | 8.2 | 814 | -- | 814 | 1.11 | -- | -- | .14 |
| JUN | | | | | | | | | | | |
| 05... | 320 | 120 | .4 | 8.2 | 806 | -- | 808 | 1.10 | -- | -- | .16 |
| 12... | 325 | 122 | .4 | 8.5 | 814 | -- | 815 | 1.11 | -- | -- | .07 |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | 38 | .14 | -- |
| 19... | 320 | 112 | .5 | 7.8 | 786 | -- | 789 | 1.07 | -- | -- | .07 |
| 26... | 320 | 110 | .5 | 8.2 | 784 | -- | 785 | 1.07 | -- | -- | .09 |
| 26... | -- | -- | -- | -- | -- | -- | -- | -- | 38 | .08 | .11 |
| JUL | | | | | | | | | | | |
| 03... | 320 | 112 | .4 | 7.5 | 788 | -- | 789 | 1.07 | -- | -- | .07 |
| 10... | 315 | 110 | .5 | 8.5 | 768 | -- | 770 | 1.04 | -- | -- | .09 |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | 10 | .08 | .09 |
| 17... | 325 | 114 | .4 | 7.5 | 796 | -- | 798 | 1.08 | -- | -- | .07 |
| 24... | 325 | 112 | .4 | 7.5 | 786 | -- | 788 | 1.07 | -- | -- | .07 |
| 24... | -- | -- | -- | -- | -- | -- | -- | -- | 16 | .08 | .11 |
| 31... | 325 | 112 | .4 | 8.5 | 790 | -- | 791 | 1.07 | -- | -- | .09 |
| AUG | | | | | | | | | | | |
| 07... | 325 | 115 | .5 | 9.6 | 792 | -- | 794 | 1.08 | -- | -- | .05 |
| 09... | -- | -- | -- | -- | -- | -- | -- | -- | 17 | .08 | -- |
| 14... | 325 | 112 | .4 | 7.2 | 788 | -- | 789 | 1.07 | -- | -- | .07 |
| 21... | 325 | 120 | .3 | 8.0 | 808 | -- | 808 | 1.10 | -- | -- | .09 |
| 28... | 325 | 120 | .4 | 8.7 | 804 | -- | 808 | 1.09 | -- | -- | .07 |
| 28... | -- | -- | -- | -- | -- | -- | -- | -- | 23 | .07 | .10 |

09429490 COLORADO RIVER ABOVE IMPERIAL DAM, AZ-CA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | NITROGEN, NITRITE TOTAL (MG/L AS N) | NITROGEN, NITRITE DISSOLVED (MG/L AS N) | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) | NITROGEN, AMMONIA TOTAL (MG/L AS N) | NITROGEN, ORGANIC TOTAL (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | NITROGEN, TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | PHOSPHORUS, DISSOLVED (MG/L AS P) | PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAR | | | | | | | | | | | |
| 20... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 21... | .01 | -- | .11 | -- | .01 | .62 | .63 | .74 | .14 | -- | -- |
| 27... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| APR | | | | | | | | | | | |
| 03... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 10... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 12... | .01 | .01 | .09 | .14 | .03 | .33 | .36 | .45 | .03 | -- | .03 |
| 17... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 24... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 25... | .01 | -- | .17 | -- | .01 | .47 | .48 | .65 | .05 | -- | -- |
| MAY | | | | | | | | | | | |
| 01... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 08... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 10... | .01 | .00 | .10 | .15 | .09 | .28 | .37 | .47 | .03 | .00 | .00 |
| 15... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 22... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 23... | .01 | -- | .11 | -- | .01 | .52 | .53 | .64 | .02 | -- | -- |
| 29... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUN | | | | | | | | | | | |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | .01 | .01 | .15 | .16 | .04 | .69 | .73 | .88 | .03 | -- | .01 |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 26... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 26... | .01 | .02 | .09 | .13 | .00 | .42 | .42 | .51 | .04 | -- | .01 |
| JUL | | | | | | | | | | | |
| 03... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 10... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 12... | .01 | .01 | .09 | .10 | .00 | .54 | .54 | .63 | .02 | -- | .03 |
| 17... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 24... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 24... | .00 | .01 | .08 | .12 | .00 | .35 | .35 | .43 | .03 | -- | .01 |
| 31... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | | | |
| 07... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 09... | .00 | .01 | .08 | .07 | .02 | 1.4 | 1.4 | 1.5 | .03 | .00 | .00 |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 21... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 28... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 28... | .01 | .01 | .08 | .11 | .01 | .30 | .31 | .39 | .04 | -- | .01 |

09429490 COLORADO RIVER ABOVE IMPERIAL DAM, AZ-CA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW (CFS) | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | TUR-BID-ITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) | COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) |
|---|---|---|---|---|---|---|---|---|---|---|
| SEP | | | | | | | | | | |
| 04... | -- | 8040 | -- | 1290 | 8.1 | -- | 3.0 | -- | -- | -- |
| 11... | -- | 9210 | -- | 1270 | 8.0 | -- | 4.0 | -- | -- | -- |
| 13... | 0920 | -- | 9500 | 1200 | 7.8 | 25.5 | -- | 7.8 | 14 | 26 |
| 18... | -- | 7970 | -- | 1280 | 7.9 | -- | 1.0 | -- | -- | -- |
| 25... | -- | 7750 | -- | 1300 | 7.8 | -- | 1.0 | -- | -- | -- |
| 25... | 1030 | -- | 7770 | -- | -- | 26.5 | -- | -- | 27 | -- |

| DATE | STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | BICAR-BONATE (MG/L AS HCO3) | CAR-BONATE (MG/L AS CO3) |
|---|---|---|---|---|---|---|---|---|---|---|
| SEP | | | | | | | | | | |
| 04... | -- | 360 | 212 | 90 | 33 | 140 | 3.2 | 5.2 | 180 | 0 |
| 11... | -- | 360 | 214 | 92 | 32 | 135 | 3.1 | 5.4 | 178 | 0 |
| 13... | 420 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 18... | -- | 360 | 212 | 90 | 33 | 135 | 3.1 | 5.4 | 180 | 0 |
| 25... | -- | 365 | 219 | 90 | 34 | 140 | 3.2 | 5.4 | 178 | 0 |
| 25... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

| DATE | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER AC-FT) | SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) | NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N) |
|---|---|---|---|---|---|---|---|---|---|---|
| SEP | | | | | | | | | | |
| 04... | 335 | 120 | .5 | 9.0 | 824 | 822 | 1.12 | -- | -- | .14 |
| 11... | 325 | 121 | .4 | 8.2 | 806 | 808 | 1.10 | -- | -- | .11 |
| 13... | -- | -- | -- | -- | -- | -- | -- | 9 | .11 | .12 |
| 18... | 330 | 122 | .4 | 8.5 | 816 | 814 | 1.11 | -- | -- | .07 |
| 25... | 335 | 125 | .3 | 8.7 | 826 | 827 | 1.12 | -- | -- | .09 |
| 25... | -- | -- | -- | -- | -- | -- | -- | 3 | .08 | .10 |

| DATE | NITRO-GEN, NITRITE TOTAL (MG/L AS N) | NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) | NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO-GEN, TOTAL (MG/L AS N) | PHOS-PHORUS, TOTAL (MG/L AS P) | PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) |
|---|---|---|---|---|---|---|---|---|---|---|
| SEP | | | | | | | | | | |
| 04... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 11... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 13... | .01 | .01 | .12 | .13 | .00 | .50 | .50 | .62 | .03 | .01 |
| 18... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 25... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 25... | .00 | .01 | .08 | .11 | .01 | .33 | .34 | .42 | .02 | .01 |

09429490 COLORADO RIVER ABOVE IMPERIAL DAM, AZ-CA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | IRON, DIS-SOLVED (UG/L AS FE) | LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) | LEAD, DIS-SOLVED (UG/L AS PB) | MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) | MANGA-NESE, DIS-SOLVED (UG/L AS MN) | MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) | MERCURY DIS-SOLVED (UG/L AS HG) | SELE-NIUM, TOTAL (UG/L AS SE) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 05... | -- | -- | -- | -- | -- | .0 | -- | -- |
| 18... | -- | -- | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | | | |
| 09... | 250 | <100 | 19 | 40 | 0 | .0 | .0 | 4 |
| 21... | -- | -- | -- | -- | -- | -- | -- | -- |
| DEC | | | | | | | | |
| 07... | -- | -- | -- | -- | -- | -- | -- | -- |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- |
| JAN | | | | | | | | |
| 11... | -- | -- | -- | -- | -- | -- | -- | -- |
| 24... | -- | -- | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | | | |
| 08... | 0 | 7 | 3 | 20 | 10 | .0 | .0 | 3 |
| 21... | -- | -- | -- | -- | -- | -- | -- | -- |
| MAR | | | | | | | | |
| 08... | -- | -- | -- | -- | -- | -- | -- | -- |
| 21... | -- | -- | -- | -- | -- | -- | -- | -- |
| APR | | | | | | | | |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- |
| 25... | -- | -- | -- | -- | -- | -- | -- | -- |
| MAY | | | | | | | | |
| 10... | 10 | 36 | 5 | 40 | 10 | .0 | .0 | 1 |
| 23... | -- | -- | -- | -- | -- | -- | -- | -- |
| JUN | | | | | | | | |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- |
| 26... | -- | -- | -- | -- | -- | -- | -- | -- |
| JUL | | | | | | | | |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- |
| 24... | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | |
| 09... | 10 | 3 | 3 | 50 | 3 | .0 | .0 | 1 |
| 28... | -- | -- | -- | -- | -- | -- | -- | -- |
| SEP | | | | | | | | |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- |
| 25... | -- | -- | -- | -- | -- | -- | -- | -- |

| DATE | SELE-NIUM, DIS-SOLVED (UG/L AS SE) | ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) | ZINC, DIS-SOLVED (UG/L AS ZN) | CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) | CARBON, ORGANIC DIS-SOLVED (MG/L AS C) | ARSENIC TOTAL (UG/L AS AS) | ARSENIC DIS-SOLVED (UG/L AS AS) | BORON, DIS-SOLVED (UG/L AS B) | CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 05... | -- | -- | -- | -- | -- | -- | -- | 170 | -- |
| 18... | -- | -- | -- | -- | -- | -- | -- | 170 | -- |
| NOV | | | | | | | | | |
| 09... | 3 | 20 | 20 | -- | -- | 3 | 3 | 200 | 10 |
| 21... | -- | -- | -- | -- | -- | -- | -- | 230 | -- |
| DEC | | | | | | | | | |
| 07... | -- | -- | -- | -- | -- | -- | -- | 190 | -- |
| 19... | -- | -- | -- | -- | -- | -- | -- | 180 | -- |
| JAN | | | | | | | | | |
| 11... | -- | -- | -- | -- | -- | -- | -- | 250 | -- |
| 24... | -- | -- | -- | -- | -- | -- | -- | 230 | -- |
| FEB | | | | | | | | | |
| 08... | 4 | 10 | 10 | -- | 3.1 | 2 | 3 | 200 | 1 |
| 21... | -- | -- | -- | -- | -- | -- | -- | 160 | -- |
| MAR | | | | | | | | | |
| 08... | -- | -- | -- | -- | -- | -- | -- | 190 | -- |
| 21... | -- | -- | -- | -- | -- | -- | -- | 170 | -- |
| APR | | | | | | | | | |
| 12... | -- | -- | -- | -- | -- | -- | -- | 710 | -- |
| 25... | -- | -- | -- | -- | -- | -- | -- | 160 | -- |
| MAY | | | | | | | | | |
| 10... | 2 | 20 | 10 | .4 | 2.5 | 12 | 2 | 180 | 3 |
| 23... | -- | -- | -- | -- | -- | -- | -- | 200 | -- |
| JUN | | | | | | | | | |
| 14... | -- | -- | -- | -- | -- | -- | -- | 180 | -- |
| 26... | -- | -- | -- | -- | -- | -- | -- | 180 | -- |
| JUL | | | | | | | | | |
| 12... | -- | -- | -- | -- | -- | -- | -- | 170 | -- |
| 24... | -- | -- | -- | -- | -- | -- | -- | 170 | -- |
| AUG | | | | | | | | | |
| 09... | 2 | 20 | 10 | .2 | 4.3 | 3 | 3 | 180 | 1 |
| 28... | -- | -- | -- | -- | -- | -- | -- | 190 | -- |
| SEP | | | | | | | | | |
| 13... | -- | -- | -- | -- | -- | -- | -- | 180 | -- |
| 25... | -- | -- | -- | -- | -- | -- | -- | 180 | -- |

09429490 COLORADO RIVER ABOVE IMPERIAL DAM AZ-CA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | CADMIUM DIS-SOLVED (UG/L AS CD) | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) | CHRO-MIUM, DIS-SOLVED (UG/L AS CR) | COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) | COBALT, DIS-SOLVED (UG/L AS CO) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) | COPPER, DIS-SOLVED (UG/L AS CU) | IRON, TOTAL RECOV-ERABLE (UG/L AS FE) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 05... | -- | -- | -- | -- | -- | -- | -- | 470 |
| 18... | -- | -- | -- | -- | -- | -- | -- | 310 |
| NOV | | | | | | | | |
| 09... | 3 | 4 | 8 | <50 | 0 | <10 | 2 | 210 |
| 21... | -- | -- | -- | -- | -- | -- | -- | 250 |
| DEC | | | | | | | | |
| 07... | -- | -- | -- | -- | -- | -- | -- | 400 |
| 19... | -- | -- | -- | -- | -- | -- | -- | 410 |
| JAN | | | | | | | | |
| 11... | -- | -- | -- | -- | -- | -- | -- | 190 |
| 24... | -- | -- | -- | -- | -- | -- | -- | 140 |
| FEB | | | | | | | | |
| 08... | 0 | 30 | 5 | 0 | 0 | 2 | 2 | 190 |
| 21... | -- | -- | -- | -- | -- | -- | -- | 1100 |
| MAR | | | | | | | | |
| 08... | -- | -- | -- | -- | -- | -- | -- | 320 |
| 21... | -- | -- | -- | -- | -- | -- | -- | 750 |
| APR | | | | | | | | |
| 12... | -- | -- | -- | -- | -- | -- | -- | 310 |
| 25... | -- | -- | -- | -- | -- | -- | -- | 300 |
| MAY | | | | | | | | |
| 10... | 1 | 0 | 10 | 3 | 2 | 5 | 0 | 430 |
| 23... | -- | -- | -- | -- | -- | -- | -- | 430 |
| JUN | | | | | | | | |
| 14... | -- | -- | -- | -- | -- | -- | -- | 490 |
| 26... | -- | -- | -- | -- | -- | -- | -- | 570 |
| JUL | | | | | | | | |
| 12... | -- | -- | -- | -- | -- | -- | -- | 390 |
| 24... | -- | -- | -- | -- | -- | -- | -- | 450 |
| AUG | | | | | | | | |
| 09... | <1 | 10 | 10 | 2 | <1 | 5 | 2 | 440 |
| 28... | -- | -- | -- | -- | -- | -- | -- | 290 |
| SEP | | | | | | | | |
| 13... | -- | -- | -- | -- | -- | -- | -- | 510 |
| 25... | -- | -- | -- | -- | -- | -- | -- | 330 |

| DATE | TIME | GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT) | GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT) | GROSS BETA, DIS-SOLVED (PCI/L AS CS-137) | GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90) | GROSS BETA, SUSP. TOTAL (PCI/L AS SR/YT-90) | RADIUM 226, DIS-SOLVED, RADON METHOD (PCI/L) | URANIUM NATURAL DIS-SOLVED (UG/L AS U) |
|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | |
| 09... | 0915 | <10 | .4 | 8.1 | 7.2 | 1.1 | .08 | 3.5 |
| MAY | | | | | | | | |
| 10... | 0905 | <11 | 1.3 | 6.0 | 5.3 | 1.3 | .15 | -- |

< Actual value is known to be less than value shown.

09429490 COLORADO RIVER ABOVE IMPERIAL DAM, AZ-CA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | PCB, TOTAL (UG/L) | ALDRIN, TOTAL (UG/L) | CHLOR-DANE, TOTAL (UG/L) | DDD, TOTAL (UG/L) | DDE, TOTAL (UG/L) | DDT, TOTAL (UG/L) | DI-AZINON, TOTAL (UG/L) | DI-ELDRIN TOTAL (UG/L) | ENDRIN, TOTAL (UG/L) | ETHION, TOTAL (UG/L) | HEPTA-CHLOR, TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 05... | 0915 | .0 | .00 | .0 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| NOV | | | | | | | | | | | | |
| 09... | 0915 | .0 | .00 | .0 | .00 | .00 | .00 | -- | .00 | .00 | -- | .00 |
| JAN | | | | | | | | | | | | |
| 11... | 0900 | .0 | .00 | .0 | .00 | .00 | .00 | .01 | .00 | .00 | .00 | .00 |
| FEB | | | | | | | | | | | | |
| 08... | 0910 | .0 | .00 | .0 | .00 | .00 | .00 | .01 | .00 | .00 | .00 | .00 |
| MAR | | | | | | | | | | | | |
| 08... | 0830 | .0 | .00 | .0 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| APR | | | | | | | | | | | | |
| 12... | 0930 | .0 | .00 | .0 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| MAY | | | | | | | | | | | | |
| 10... | 0905 | .0 | .00 | .0 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| JUL | | | | | | | | | | | | |
| 12... | 0930 | .0 | .00 | .0 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| AUG | | | | | | | | | | | | |
| 09... | 0900 | .0 | .00 | .0 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| SEP | | | | | | | | | | | | |
| 13... | 0920 | .0 | .00 | .0 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |

| DATE | HEPTA-CHLOR EPOXIDE TOTAL (UG/L) | LINDANE TOTAL (UG/L) | MALA-THION, TOTAL (UG/L) | METHYL PARA-THION, TOTAL (UG/L) | METHYL TRI-THION, TOTAL (UG/L) | PARA-THION, TOTAL (UG/L) | TOX-APHENE, TOTAL (UG/L) | TOTAL TRI-THION (UG/L) | 2,4-D, TOTAL (UG/L) | 2,4,5-T TOTAL (UG/L) | SILVEX, TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 05... | .00 | .00 | .00 | .00 | .00 | .00 | 0 | .00 | .00 | .00 | .00 |
| NOV | | | | | | | | | | | |
| 09... | .00 | .00 | -- | -- | -- | -- | 0 | -- | .00 | .00 | .00 |
| JAN | | | | | | | | | | | |
| 11... | .00 | .00 | .00 | .01 | .00 | .00 | 0 | .00 | .00 | .00 | .00 |
| FEB | | | | | | | | | | | |
| 08... | .00 | .00 | .00 | .00 | .00 | .00 | 0 | .00 | .00 | .00 | .00 |
| MAR | | | | | | | | | | | |
| 08... | .00 | .00 | .00 | .00 | .00 | .00 | 0 | .00 | .00 | .00 | .00 |
| APR | | | | | | | | | | | |
| 12... | .00 | .00 | .00 | .00 | .00 | .00 | 0 | .00 | .00 | .00 | .00 |
| MAY | | | | | | | | | | | |
| 10... | .00 | .00 | .00 | .00 | .00 | .00 | 0 | .00 | .00 | .00 | .00 |
| JUL | | | | | | | | | | | |
| 12... | .00 | .00 | .00 | .00 | .00 | .00 | 0 | .00 | .00 | .00 | .00 |
| AUG | | | | | | | | | | | |
| 09... | .00 | .00 | .00 | .00 | .00 | .00 | 0 | .00 | .00 | .00 | .00 |
| SEP | | | | | | | | | | | |
| 13... | .00 | .00 | .00 | .00 | .00 | .00 | 0 | .00 | .00 | .00 | .00 |

| DATE | TIME | PHYTO-PLANK-TON, TOTAL (CELLS PER ML) | PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M | PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M | CHLORO-PHYLL A PHYTO-PLANK-TON, UNCORR. (UG/L) | CHLORO-PHYLL B PHYTO-PLANK-TON, UNCORR. (UG/L) |
|---|---|---|---|---|---|---|
| NOV | | | | | | |
| 09... | 0915 | 1700 | -- | -- | 4.73 | 3.14 |
| FEB | | | | | | |
| 08... | 0910 | 1800 | -- | -- | .494 | .000 |
| MAY | | | | | | |
| 10... | 0905 | 8300 | 2.99 | 2.20 | .000 | .000 |
| JUN | | | | | | |
| 14... | 0915 | 2300 | -- | -- | .000 | .000 |
| JUL | | | | | | |
| 12... | 0930 | 1300 | -- | -- | -- | -- |
| AUG | | | | | | |
| 09... | 0900 | -- | .472 | .236 | -- | -- |
| SEP | | | | | | |
| 13... | 0920 | 4800 | -- | -- | .000 | .000 |

09429490 COLORADO RIVER ABOVE IMPERIAL DAM, AZ-CA--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1370 | 1330 | 1440 | 1540 | 1330 | 1200 | 1190 | 1230 | 1240 | 1260 | 1220 | 1290 |
| 2 | 1390 | 1310 | 1420 | 1630 | 1330 | 1210 | 1180 | 1240 | 1260 | 1240 | 1240 | 1300 |
| 3 | 1350 | 1300 | 1350 | 1640 | 1370 | 1270 | 1190 | 1250 | 1270 | 1240 | 1240 | 1320 |
| 4 | 1330 | 1340 | 1320 | 1640 | 1420 | 1310 | 1180 | 1250 | 1300 | 1240 | 1240 | 1290 |
| 5 | 1320 | 1350 | 1310 | 1540 | 1450 | 1330 | 1190 | 1260 | 1270 | 1230 | 1260 | 1270 |
| 6 | 1310 | 1390 | 1290 | 1530 | 1480 | 1340 | 1200 | 1290 | 1250 | 1240 | 1250 | 1260 |
| 7 | 1320 | 1400 | 1280 | 1570 | 1440 | 1350 | 1210 | 1310 | 1250 | 1280 | 1250 | 1310 |
| 8 | 1320 | 1400 | 1290 | 1620 | 1400 | 1300 | 1220 | 1280 | 1230 | 1280 | 1230 | 1310 |
| 9 | 1370 | 1350 | 1300 | 1630 | 1370 | 1280 | 1200 | 1260 | 1270 | 1270 | 1230 | 1290 |
| 10 | 1390 | 1320 | 1310 | 1590 | 1350 | 1260 | 1200 | 1250 | 1290 | 1210 | 1220 | 1300 |
| 11 | 1450 | 1330 | 1340 | 1540 | 1350 | 1240 | 1200 | 1260 | 1310 | 1240 | 1240 | 1270 |
| 12 | 1400 | 1350 | 1340 | 1550 | 1340 | 1220 | 1210 | 1290 | 1280 | 1250 | 1250 | 1240 |
| 13 | 1390 | 1390 | 1330 | 1530 | 1310 | 1190 | 1200 | 1310 | 1260 | 1230 | 1240 | 1240 |
| 14 | 1400 | 1380 | 1310 | 1530 | 1270 | 1180 | 1220 | 1300 | 1240 | 1240 | 1240 | 1250 |
| 15 | 1410 | 1340 | 1310 | 1510 | 1220 | 1210 | 1230 | 1270 | 1250 | 1250 | 1240 | 1260 |
| 16 | 1420 | 1320 | 1310 | 1520 | 1280 | 1230 | 1220 | 1260 | 1250 | 1250 | 1260 | 1280 |
| 17 | 1410 | 1330 | 1310 | 1530 | 1230 | 1230 | 1210 | 1240 | 1270 | 1250 | 1260 | 1320 |
| 18 | 1340 | 1370 | 1340 | 1530 | 1240 | 1200 | 1210 | 1250 | 1260 | 1250 | 1280 | 1280 |
| 19 | 1310 | 1420 | 1320 | 1530 | 1270 | 1160 | 1210 | 1270 | 1240 | 1240 | 1280 | 1280 |
| 20 | 1310 | 1440 | 1310 | 1530 | 1190 | 1170 | 1200 | 1260 | 1240 | 1250 | 1290 | 1290 |
| 21 | 1310 | 1410 | 1300 | 1520 | 1210 | 1180 | 1220 | 1260 | 1230 | 1250 | 1270 | 1280 |
| 22 | 1320 | 1340 | 1310 | 1520 | 1230 | 1180 | 1220 | 1230 | 1230 | 1240 | 1260 | 1290 |
| 23 | 1350 | 1310 | 1330 | 1530 | 1260 | 1190 | 1230 | 1240 | 1240 | 1240 | 1260 | 1310 |
| 24 | 1350 | 1320 | 1370 | 1530 | 1230 | 1200 | 1210 | 1250 | 1270 | 1240 | 1270 | 1330 |
| 25 | 1330 | 1340 | 1440 | 1540 | 1220 | 1190 | 1200 | 1270 | 1260 | 1220 | 1290 | 1300 |
| 26 | 1310 | 1360 | 1490 | 1530 | 1200 | 1170 | 1210 | 1280 | 1230 | 1230 | 1310 | 1250 |
| 27 | 1310 | 1420 | 1340 | 1530 | 1190 | 1200 | 1220 | 1310 | 1230 | 1270 | 1290 | 1250 |
| 28 | 1340 | 1470 | 1270 | 1510 | 1210 | 1190 | 1250 | 1320 | 1250 | 1260 | 1270 | 1250 |
| 29 | 1360 | 1450 | 1310 | 1610 | --- | 1190 | 1270 | 1280 | 1240 | 1280 | 1260 | 1260 |
| 30 | 1360 | 1450 | 1380 | 1520 | --- | 1200 | 1240 | 1260 | 1260 | 1250 | 1260 | 1280 |
| 31 | 1360 | --- | 1480 | 1380 | --- | 1200 | --- | 1260 | --- | 1240 | 1270 | --- |
| MEAN | 1360 | 1370 | 1340 | 1550 | 1300 | 1220 | 1210 | 1270 | 1260 | 1250 | 1260 | 1280 |

WTR YR 1978 MEAN 1300 MAX 1640 MIN 1160

09429490 COLORADO RIVER ABOVE IMPERIAL DAM, AZ-CA--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
INSTANTANEOUS OBSERVATIONS AT 1230

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 26.5 | 22.0 | 17.0 | 17.0 | 16.0 | 16.5 | 21.5 | 23.0 | 26.0 | 28.0 | 31.0 | 30.5 |
| 2 | 26.0 | 21.0 | 16.5 | 16.5 | 16.5 | 17.0 | 21.0 | 22.0 | 26.5 | 28.5 | 31.0 | 30.5 |
| 3 | 26.5 | 21.5 | 16.5 | 16.0 | 17.0 | 17.0 | 20.5 | 23.0 | 26.5 | 28.0 | 31.0 | 31.0 |
| 4 | 26.0 | 21.0 | 16.5 | 15.0 | 16.0 | 18.0 | 20.5 | 24.0 | 26.5 | 28.0 | 31.0 | 30.5 |
| 5 | 27.0 | 21.5 | 16.0 | 15.0 | 16.0 | 18.0 | 20.5 | 24.5 | 28.0 | 28.0 | 31.0 | 30.0 |
| 6 | 26.5 | 20.0 | 16.0 | 15.5 | 16.0 | 18.0 | 20.5 | 23.5 | 28.0 | 28.0 | 31.5 | 29.5 |
| 7 | 27.0 | 19.5 | 16.0 | 15.5 | 16.0 | 19.0 | 20.5 | 23.5 | 26.0 | 28.5 | 31.5 | 30.5 |
| 8 | 28.0 | 19.0 | 16.0 | 16.0 | 16.5 | 19.0 | 20.0 | 23.5 | 29.0 | 29.0 | 31.5 | 30.0 |
| 9 | 28.5 | 18.5 | 16.0 | 15.0 | 18.0 | 19.0 | 19.0 | 24.5 | 30.0 | 29.0 | 31.0 | 29.5 |
| 10 | 28.5 | 17.0 | 16.0 | 14.5 | 17.0 | 19.0 | 20.0 | 24.5 | 29.5 | 29.5 | 31.0 | 28.5 |
| 11 | 28.5 | 17.0 | 16.0 | 14.5 | 16.5 | 19.0 | 20.5 | 24.5 | 29.0 | 30.0 | 31.5 | 28.5 |
| 12 | 26.5 | 18.0 | 16.0 | 14.5 | 15.5 | 18.0 | 21.5 | 25.5 | 29.0 | 29.5 | 30.5 | 28.5 |
| 13 | 25.5 | 18.5 | 16.0 | 14.5 | 15.5 | 16.5 | 22.0 | 26.0 | 29.0 | --- | 30.5 | 28.0 |
| 14 | 25.0 | 18.5 | 15.5 | 14.5 | 15.5 | 18.0 | 21.5 | 27.0 | 29.0 | 30.0 | 30.0 | 27.0 |
| 15 | 24.5 | 18.5 | 17.0 | 15.5 | 15.5 | 18.5 | 21.5 | 26.5 | 29.0 | 30.5 | 29.0 | 27.0 |
| 16 | 25.0 | 18.5 | 15.5 | 15.0 | 15.5 | 19.0 | 21.0 | 25.0 | 28.5 | 31.0 | 30.0 | 27.5 |
| 17 | 25.5 | 18.0 | 15.5 | 15.5 | 14.5 | 19.0 | 20.5 | 24.0 | 28.5 | 30.5 | 28.5 | 28.0 |
| 18 | 25.5 | 19.0 | 15.5 | 15.5 | 14.5 | 20.0 | 21.0 | 24.0 | 29.5 | 31.5 | 29.0 | 26.0 |
| 19 | 26.0 | 19.0 | 15.5 | 15.5 | 14.5 | 19.0 | 21.5 | 24.5 | 29.5 | 31.0 | 29.0 | 25.0 |
| 20 | 24.5 | 18.0 | 14.5 | 16.0 | 14.5 | 19.5 | 22.0 | 25.5 | 29.5 | 31.0 | 29.5 | 23.5 |
| 21 | 24.5 | 16.5 | 14.5 | 16.0 | 15.5 | 20.5 | 21.5 | 26.0 | 29.5 | 31.0 | 29.5 | 23.0 |
| 22 | 24.5 | 16.5 | 13.0 | 16.0 | 16.0 | 21.0 | 21.5 | 26.5 | 30.0 | 31.0 | 30.0 | 23.5 |
| 23 | 24.5 | 15.5 | 13.0 | 16.0 | 17.0 | 20.5 | 21.5 | 26.0 | 30.0 | 30.5 | 29.5 | 25.5 |
| 24 | 24.5 | 15.5 | 13.0 | 14.0 | 17.0 | 20.5 | 22.0 | 25.0 | 30.0 | 31.0 | 30.0 | 26.5 |
| 25 | 24.5 | 16.5 | 14.0 | 13.5 | 17.0 | 20.5 | 23.5 | 25.0 | 30.0 | 31.0 | 29.0 | 28.0 |
| 26 | 24.0 | 16.5 | 14.5 | 13.5 | 17.0 | 21.0 | 23.0 | 24.5 | 29.5 | 31.0 | 28.0 | 28.0 |
| 27 | 24.0 | 18.0 | 15.0 | 14.0 | 17.0 | 21.5 | 23.0 | 24.5 | 28.5 | 31.0 | 28.5 | 28.5 |
| 28 | 23.5 | 18.0 | 15.5 | 14.5 | 17.0 | 21.5 | 23.5 | 25.0 | 28.5 | 32.0 | 29.0 | 29.0 |
| 29 | 24.0 | 17.0 | 16.0 | 15.0 | --- | 21.5 | 23.5 | 26.0 | 28.0 | 32.0 | 29.0 | 29.0 |
| 30 | 23.5 | 16.0 | 16.5 | 15.0 | --- | 21.5 | 23.5 | 27.0 | 28.0 | 32.0 | 29.5 | 29.0 |
| 31 | 23.0 | --- | 16.5 | 16.0 | --- | 21.5 | --- | 27.0 | --- | 31.5 | 30.0 | --- |
| MEAN | 25.5 | 18.5 | 15.5 | 15.0 | 16.0 | 19.5 | 21.5 | 25.0 | 29.0 | 30.0 | 30.0 | 28.0 |

WTR YR 1978 MEAN 23.0 MAX 32.0 MIN 13.0

09429490 COLORADO RIVER ABOVE IMPERIAL DAM, AZ-CA--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

PHYTOPLANKTON

| DATE | NOV 9,77 | | FEB 8,78 | | MAY 10,78 | | JUN 14,78 | |
|---|---|---|---|---|---|---|---|---|
| TIME | 0915 | | 0910 | | 0905 | | 0915 | |
| TOTAL CELLS/ML | 1700 | | 1800 | | 8300 | | 2300 | |
| DIVERSITY: DIVISION | 1.7 | | 0.8 | | 1.4 | | 1.7 | |
| .CLASS | 1.9 | | 0.8 | | 1.7 | | 1.7 | |
| ..ORDER | 2.7 | | 1.3 | | 2.3 | | 1.9 | |
| ...FAMILY | 3.1 | | 1.6 | | 2.6 | | 2.9 | |
| ....GENUS | 3.5 | | 2.1 | | 2.9 | | 2.9 | |
| ORGANISM | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT |
| CHLOROPHYTA (GREEN ALGAE) | | | | | | | | |
| .CHLOROPHYCEAE | | | | | | | | |
| ..CHLOROCOCCALES | | | | | | | | |
| ...CHARACIACEAE | | | | | | | | |
| ....SCHRUEDERIA | 96 | 6 | -- | - | -- | - | -- | - |
| ...COELASTRACEAE | | | | | | | | |
| ....COELASTRUM | -- | - | -- | - | -- | - | -- | - |
| ...MICRACTINIACEAE | | | | | | | | |
| ....MICRACTINIUM | -- | - | 64 | 4 | -- | - | -- | - |
| ...OOCYSTACEAE | | | | | | | | |
| ....ANKISTRODESMUS | 29 | 2 | 32 | 2 | -- | - | -- | - |
| ....DICTYOSPHAERIUM | -- | - | 64 | 4 | -- | - | -- | - |
| ....KIRCHNERIELLA | -- | - | -- | - | -- | - | -- | - |
| ....OOCYSTIS | -- | - | -- | - | 360 | 4 | 180 | 8 |
| ....TETRAEDRON | -- | - | -- | - | 72 | 1 | -- | - |
| ...SCENEDESMACEAE | | | | | | | | |
| ....CRUCIGENIA | -- | - | -- | - | -- | - | -- | - |
| ....SCENEDESMUS | 76 | 5 | 48 | 3 | 360 | 4 | 530# | 23 |
| ....TETRASTRUM | -- | - | -- | - | 290 | 3 | -- | - |
| ..TETRASPORALES | | | | | | | | |
| ...PALMELLACEAE | | | | | | | | |
| ....SPHAEROCYSTIS | 310# | 18 | -- | - | -- | - | -- | - |
| ..VOLVUCALES | | | | | | | | |
| ...CHLAMYDOMONADACEAE | | | | | | | | |
| ....CARTERIA | -- | - | -- | - | -- | - | -- | - |
| ....CHLAMYDOMONAS | 38 | 2 | 48 | 3 | 72 | 1 | -- | - |
| ....CHLOROGONIUM | -- | - | -- | - | -- | - | -- | - |
| ...POLYBLEPHARIDACEAE | | | | | | | | |
| ....SPERMATOZOOPSIS | -- | - | -- | - | 72 | 1 | -- | - |
| ..ZYGNEMATALES | | | | | | | | |
| ...DESMIDIACEAE | | | | | | | | |
| ....COSMARIUM | -- | - | -- | - | -- | - | 120 | 5 |
| ....STAURASTRUM | -- | - | -- | - | -- | - | -- | - |
| CHRYSOPHYTA | | | | | | | | |
| .BACILLARIOPHYCEAE | | | | | | | | |
| ..CENTRALES | | | | | | | | |
| ...COSCINODISCACEAE | | | | | | | | |
| ....CYCLOTELLA | 110 | 6 | 1100# | 60 | 3000# | 36 | -- | - |
| ....MELOSIRA | 340# | 20 | 220 | 13 | -- | - | -- | - |
| ....STEPHANODISCUS | 38 | 2 | -- | - | -- | - | -- | - |
| ..PENNALES | | | | | | | | |
| ...ACHNANTHACEAE | | | | | | | | |
| ....ACHNANTHES | -- | - | -- | - | 220 | 3 | -- | - |
| ....COCCONEIS | 19 | 1 | -- | - | 72 | 1 | 29 | 1 |
| ....RHOICOSPHENIA | -- | - | -- | - | -- | - | -- | - |
| ...CYMBELLACEAE | | | | | | | | |
| ....CYMBELLA | -- | - | -- | - | -- | - | 44 | 2 |
| ...DIATOMACEAE | | | | | | | | |
| ....DIATOMA | -- | - | -- | - | 72 | 1 | -- | - |
| ...FRAGILARIACEAE | | | | | | | | |
| ....FRAGILARIA | -- | - | -- | - | -- | - | -- | - |
| ....SYNEDRA | 86 | 5 | -- | - | 140 | 2 | 73 | 3 |
| ...NAVICULACEAE | | | | | | | | |
| ....GYROSIGMA | -- | - | -- | - | -- | - | 44 | 2 |
| ....NAVICULA | 29 | 2 | 80 | 5 | 72 | 1 | 88 | 4 |
| ....PINNULARIA | -- | - | -- | - | -- | - | -- | - |
| ...NITZSCHIACEAE | | | | | | | | |
| ....NITZSCHIA | 86 | 5 | 96 | 5 | 290 | 3 | 290 | 13 |
| ...TABELLARIACEAE | | | | | | | | |
| ....TABELLARIA | -- | - | -- | - | -- | - | 180 | 8 |
| .CHRYSOPHYCEAE | | | | | | | | |
| ..CHRYSOMONADALES | | | | | | | | |
| ...OCHROMONADACEAE | | | | | | | | |
| ....DINOBRYON | 48 | 3 | -- | - | 360 | 4 | -- | - |
| ....OCHROMONAS | -- | - | -- | - | 360 | 4 | -- | - |
| CRYPTOPHYTA (CRYPTOMONADS) | | | | | | | | |
| .CRYPTOPHYCEAE | | | | | | | | |
| ..CRYPTOMONIDALES | | | | | | | | |
| ...CRYPTOMONODACEAE | | | | | | | | |
| ....CRYPTOMONAS | 38 | 2 | -- | - | -- | - | -- | - |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

09429490 COLORADO RIVER ABOVE IMPERIAL DAM, AZ-CA--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

PHYTOPLANKTON

| DATE | NOV 9,77 | | FEB 8,78 | | MAY 10,78 | | JUN 14,78 | |
|---|---|---|---|---|---|---|---|---|
| TIME | 0915 | | 0910 | | 0905 | | 0915 | |
| ORGANISM | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT |
| CYANOPHYTA (BLUE-GREEN ALGAE) | | | | | | | | |
| .CYANOPHYCEAE | | | | | | | | |
| ..CHROOCOCCALES | | | | | | | | |
| ...CHROOCOCCACEAE | | | | | | | | |
| ....ANACYSTIS | 38 | 2 | -- | - | 140 | 2 | 700# | 30 |
| ..HORMOGONALES | | | | | | | | |
| ...NOSTOCACEAE | | | | | | | | |
| ....CYLINDROSPERMUM | -- | - | -- | - | -- | - | -- | - |
| ...OSCILLATORIACEAE | | | | | | | | |
| ....OSCILLATORIA | 290# | 17 | -- | - | 2400# | 28 | -- | - |
| ....SPIRULINA | -- | - | 48 | 3 | -- | - | -- | - |
| ...RIVULARIACEAE | | | | | | | | |
| ....RAPHIDIOPSIS | -- | - | -- | - | -- | - | -- | - |
| EUGLENOPHYTA (EUGLENOIDS) | | | | | | | | |
| .EUGLENOPHYCEAE | | | | | | | | |
| ..EUGLENALES | | | | | | | | |
| ...EUGLENACEAE | | | | | | | | |
| ....EUGLENA | 19 | 1 | -- | - | -- | - | -- | - |
| PYRRHOPHYTA (FIRE ALGAE) | | | | | | | | |
| .DINOPHYCEAE | | | | | | | | |
| ..PERIDINIALES | | | | | | | | |
| ...CERATIACEAE | | | | | | | | |
| ....CERATIUM | -- | - | -- | - | -- | - | 59 | 3 |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

09429490 COLORADO RIVER ABOVE IMPERIAL DAM, AZ-CA--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

PHYTOPLANKTON

| DATE | JUL 12,78 | AUG 9,78 | SEP 13,78 |
|---|---|---|---|
| TIME | 0930 | 0900 | 0920 |
| TOTAL CELLS/ML | 1500 | 2600 | 4600 |
| DIVERSITY: DIVISION | 1.5 | 1.0 | 1.3 |
| .CLASS | 1.5 | 1.0 | 1.3 |
| ..ORDER | 1.5 | 1.3 | 2.4 |
| ...FAMILY | 1.6 | 2.1 | 3.0 |
| ....GENUS | 2.1 | 2.2 | 3.1 |

| ORGANISM | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT |
|---|---|---|---|---|---|---|
| CHLOROPHYTA (GREEN ALGAE) | | | | | | |
| .CHLOROPHYCEAE | | | | | | |
| ..CHLOROCOCCALES | | | | | | |
| ...CHARACIACEAE | | | | | | |
| ....SCHROEDERIA | -- | - | -- | - | -- | - |
| ...COELASTRACEAE | | | | | | |
| ....COELASTRUM | -- | - | 700# | 27 | -- | - |
| ...MICRACTINIACEAE | | | | | | |
| ....MICRACTINIUM | -- | - | 48 | 2 | -- | - |
| ...OOCYSTACEAE | | | | | | |
| ....ANKISTRODESMUS | -- | - | 24 | 1 | 55 | 1 |
| ....DICTYOSPHAERIUM | -- | - | -- | - | 110 | 2 |
| ....KIRCHNERIELLA | -- | - | -- | - | * | 0 |
| ....OOCYSTIS | -- | - | -- | - | -- | - |
| ....TETRAEDRON | -- | - | * | 0 | -- | - |
| ...SCENEDESMACEAE | | | | | | |
| ....CRUCIGENIA | 230# | 19 | -- | - | -- | - |
| ....SCENEDESMUS | 230# | 19 | 790# | 30 | 250 | 5 |
| ....TETRASTRUM | -- | - | -- | - | -- | - |
| ..TETRASPORALES | | | | | | |
| ...PALMELLACEAE | | | | | | |
| ....SPHAEROCYSTIS | -- | - | -- | - | 55 | 1 |
| ..VOLVOCALES | | | | | | |
| ...CHLAMYDOMONADACEAE | | | | | | |
| ....CARTERIA | -- | - | -- | - | 110 | 2 |
| ....CHLAMYDOMONAS | -- | - | -- | - | 83 | 2 |
| ....CHLOROGONIUM | -- | - | -- | - | * | 0 |
| ...POLYBLEPHARIDACEAE | | | | | | |
| ....SPERMATOZOOPSIS | -- | - | -- | - | * | 0 |
| ..ZYGNEMATALES | | | | | | |
| ...DESMIDIACEAE | | | | | | |
| ....COSMARIUM | -- | - | -- | - | -- | - |
| ....STAURASTRUM | -- | - | -- | - | * | 0 |
| CHRYSOPHYTA | | | | | | |
| .BACILLARIOPHYCEAE | | | | | | |
| ..CENTRALES | | | | | | |
| ...COSCINODISCACEAE | | | | | | |
| ....CYCLOTELLA | -- | - | 740# | 28 | 570 | 12 |
| ....MELOSIRA | -- | - | 24 | 1 | -- | - |
| ....STEPHANODISCUS | -- | - | * | 0 | -- | - |
| ..PENNALES | | | | | | |
| ...ACHNANTHACEAE | | | | | | |
| ....ACHNANTHES | -- | - | * | 0 | -- | - |
| ....COCCONEIS | -- | - | -- | - | 28 | 1 |
| ....RHOICOSPHENIA | -- | - | -- | - | * | 0 |
| ...CYMBELLACEAE | | | | | | |
| ....CYMBELLA | -- | - | -- | - | -- | - |
| ...DIATOMACEAE | | | | | | |
| ....DIATOMA | -- | - | -- | - | -- | - |
| ...FRAGILARIACEAE | | | | | | |
| ....FRAGILARIA | 29 | 2 | -- | - | -- | - |
| ....SYNEDRA | 100 | 8 | -- | - | -- | - |
| ...NAVICULACEAE | | | | | | |
| ....GYROSIGMA | -- | - | -- | - | * | 0 |
| ....NAVICULA | 44 | 3 | -- | - | 69 | 1 |
| ....PINNULARIA | 29 | 2 | -- | - | -- | - |
| ...NITZSCHIACEAE | | | | | | |
| ....NITZSCHIA | -- | - | 280 | 11 | 250 | 5 |
| ...TABELLARIACEAE | | | | | | |
| ....TABELLARIA | -- | - | -- | - | -- | - |
| .CHRYSOPHYCEAE | | | | | | |
| ..CHRYSOMONADALES | | | | | | |
| ...OCHROMONADACEAE | | | | | | |
| ....DINOBRYON | -- | - | -- | - | -- | - |
| ....OCHROMONAS | -- | - | -- | - | -- | - |
| CRYPTOPHYTA (CRYPTOMONADS) | | | | | | |
| .CRYPTOPHYCEAE | | | | | | |
| ..CRYPTOMONIDALES | | | | | | |
| ...CRYPTOMONODACEAE | | | | | | |
| ....CRYPTOMONAS | -- | - | -- | - | 41 | 1 |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

09429490 COLORADO RIVER ABOVE IMPERIAL DAM, AZ-CA--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

PHYTOPLANKTON

| DATE | JUL 12,78 | | AUG 9,78 | | SEP 13,78 | |
|---|---|---|---|---|---|---|
| TIME | 0930 | | 0900 | | 0920 | |
| ORGANISM | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT |
| CYANOPHYTA (BLUE-GREEN ALGAE) | | | | | | |
| .CYANOPHYCEAE | | | | | | |
| ..CHROCCOCCALES | | | | | | |
| ...CHROCCOCCACEAE | | | | | | |
| ....ANACYSTIS | 590# | 47 | -- | - | 1300# | 28 |
| ..HORMOGONALES | | | | | | |
| ...NOSTOCACEAE | | | | | | |
| ....CYLINDROSPERMUM | -- | - | -- | - | 330 | 7 |
| ...OSCILLATORIACEAE | | | | | | |
| ....OSCILLATORIA | -- | - | -- | - | 1300# | 27 |
| ....SPIRULINA | -- | - | -- | - | -- | - |
| ...RIVULARIACEAE | | | | | | |
| ....RAPHIDIOPSIS | -- | - | -- | - | 140 | 3 |
| EUGLENOPHYTA (EUGLENOIDS) | | | | | | |
| .EUGLENOPHYCEAE | | | | | | |
| ..EUGLENALES | | | | | | |
| ...EUGLENACEAE | | | | | | |
| ....EUGLENA | -- | - | -- | - | -- | - |
| PYRRHOPHYTA (FIRE ALGAE) | | | | | | |
| .DINOPHYCEAE | | | | | | |
| ..PERIDINIALES | | | | | | |
| ...CERATIACEAE | | | | | | |
| ....CERATIUM | -- | - | -- | - | -- | - |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

## 09429500 COLORADO RIVER BELOW IMPERIAL DAM, AZ-CA

LOCATION.--Forebay gage: Lat 32°52'59", long 114°27'57", in NW¼SW¼ sec.9, T.15 S., R.24 E., San Bernardino meridian, in California, Imperial County, Hydrologic Unit 15030107, near All-American Canal headworks at west end of Imperial Dam, 5 mi (8 km) upstream from Laguna Dam, 15 mi (24 km) northeast of Yuma, 90 mi (145 km) downstream from Palo Verde Dam, and 147 mi (237 km) downstream from Parker Dam.

DRAINAGE AREA.--188,500 $mi^2$ (488,200 $km^2$), approximately, including 3,959 $mi^2$ (10,254 $km^2$) in Great Divide basin in southern Wyoming, which is noncontributing (previously considered part of the Missouri River basin).

PERIOD OF RECORD.--October 1960 to current year. Prior to October 1971 published as "at Imperial Dam." Records of flow reaching Imperial Dam, formerly published with this station, are now published separately as sta 09429490, "Colorado River above Imperial Dam."

GAGE.--Water-stage recorder in forebay, 12 calibrated gates on California sluiceway, 8 calibrated gates on Gila sluiceway, and calibrated manometer on each discharge pipe from desilting basin. Datum of forebay gage is 162.00 ft (49.378 m) U.S. Bureau of Reclamation datum.

REMARKS.--Records good. Records of daily discharge show flow of Colorado River passing Imperial Dam, and include water released to river through California and Gila sluiceways, sludge from desilting basins returned to river, and leakage through dam. For records of flow reaching Imperial Dam see sta 09429490.

Flow of Colorado River regulated by many reservoirs, principally Lake Mead, since 1935. Many diversions from Colorado River and tributaries above station. Diversion to Mittry Lake and monthend contents of Senator Wash Reservoir also are now published with sta 09429490.

COOPERATION.--Records of gate openings furnished by Bureau of Reclamation. Records of sludge return flow from desilting basins furnished by Imperial Irrigation District.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 5,300 $ft^3/s$ (150 $m^3/s$) Aug. 18, 1977; minimum daily, 27 $ft^3/s$ (0.76 $m^3/s$) Dec. 15-18, 1969.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 3,200 $ft^3/s$ (90.6 $m^3/s$) Mar. 1; minimum daily, 224 $ft^3/s$ (6.34 $m^3/s$) June 8-12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 232 | 233 | 236 | 656 | 1160 | 3200 | 344 | 324 | 415 | 501 | 333 | 233 |
| 2 | 232 | 379 | 236 | 1020 | 700 | 2940 | 344 | 346 | 416 | 594 | 333 | 343 |
| 3 | 232 | 538 | 235 | 963 | 675 | 432 | 344 | 875 | 417 | 323 | 333 | 771 |
| 4 | 232 | 537 | 235 | 1250 | 673 | 290 | 623 | 860 | 417 | 463 | 333 | 873 |
| 5 | 232 | 537 | 235 | 1380 | 673 | 875 | 429 | 812 | 417 | 323 | 333 | 875 |
| 6 | 232 | 535 | 235 | 1050 | 399 | 273 | 523 | 810 | 774 | 323 | 333 | 880 |
| 7 | 423 | 395 | 383 | 967 | 365 | 246 | 428 | 814 | 413 | 323 | 333 | 878 |
| 8 | 505 | 233 | 381 | 924 | 236 | 246 | 406 | 814 | 224 | 323 | 333 | 875 |
| 9 | 232 | 318 | 382 | 936 | 236 | 246 | 334 | 976 | 224 | 323 | 333 | 873 |
| 10 | 232 | 233 | 235 | 1560 | 236 | 246 | 334 | 900 | 224 | 323 | 333 | 873 |
| 11 | 232 | 233 | 235 | 1910 | 236 | 246 | 427 | 806 | 224 | 323 | 333 | 873 |
| 12 | 232 | 233 | 235 | 2080 | 236 | 246 | 334 | 542 | 224 | 323 | 333 | 878 |
| 13 | 232 | 233 | 235 | 1910 | 236 | 618 | 334 | 625 | 274 | 323 | 333 | 878 |
| 14 | 232 | 517 | 235 | 1770 | 256 | 246 | 334 | 578 | 324 | 530 | 333 | 1370 |
| 15 | 232 | 610 | 235 | 1800 | 427 | 346 | 334 | 578 | 324 | 519 | 521 | 878 |
| 16 | 232 | 233 | 285 | 1730 | 236 | 346 | 334 | 657 | 324 | 343 | 333 | 873 |
| 17 | 232 | 233 | 235 | 1690 | 236 | 346 | 334 | 740 | 324 | 343 | 333 | 873 |
| 18 | 232 | 233 | 235 | 1590 | 236 | 346 | 334 | 740 | 324 | 343 | 333 | 882 |
| 19 | 232 | 233 | 235 | 1510 | 236 | 346 | 334 | 732 | 324 | 343 | 333 | 1040 |
| 20 | 422 | 233 | 235 | 1560 | 236 | 346 | 334 | 732 | 324 | 343 | 333 | 875 |
| 21 | 423 | 233 | 235 | 1320 | 236 | 346 | 334 | 744 | 324 | 343 | 333 | 764 |
| 22 | 232 | 233 | 235 | 1220 | 236 | 346 | 428 | 744 | 324 | 343 | 333 | 651 |
| 23 | 232 | 233 | 235 | 1300 | 236 | 346 | 334 | 746 | 324 | 343 | 427 | 649 |
| 24 | 232 | 233 | 235 | 742 | 236 | 432 | 334 | 921 | 324 | 343 | 522 | 681 |
| 25 | 422 | 233 | 235 | 672 | 236 | 689 | 334 | 916 | 324 | 343 | 333 | 871 |
| 26 | 232 | 450 | 236 | 698 | 236 | 1300 | 334 | 742 | 324 | 532 | 333 | 878 |
| 27 | 232 | 247 | 1030 | 630 | 438 | 818 | 334 | 740 | 324 | 437 | 333 | 880 |
| 28 | 232 | 240 | 2010 | 488 | 985 | 350 | 334 | 744 | 607 | 343 | 333 | 882 |
| 29 | 232 | 235 | 460 | 554 | --- | 346 | 334 | 740 | 539 | 343 | 333 | 880 |
| 30 | 232 | 235 | 236 | 662 | --- | 346 | 334 | 740 | 459 | 343 | 333 | 610 |
| 31 | 232 | --- | 236 | 954 | --- | 346 | --- | 585 | --- | 343 | 283 | --- |
| TOTAL | 8227 | 9501 | 10576 | 37496 | 10763 | 18091 | 10976 | 22623 | 10804 | 11608 | 10744 | 24640 |
| MEAN | 265 | 317 | 341 | 1210 | 384 | 584 | 366 | 730 | 360 | 374 | 347 | 821 |
| MAX | 505 | 610 | 2010 | 2080 | 1160 | 3200 | 623 | 976 | 774 | 594 | 522 | 1370 |
| MIN | 232 | 233 | 235 | 488 | 236 | 246 | 334 | 324 | 224 | 323 | 283 | 233 |
| AC-FT | 16320 | 18850 | 20980 | 74370 | 21350 | 35880 | 21770 | 44870 | 21430 | 23020 | 21310 | 48870 |

CAL YR 1977 TOTAL 180408 MEAN 494 MAX 5300 MIN 214 AC-FT 357800
WTR YR 1978 TOTAL 186049 MEAN 510 MAX 3200 MIN 224 AC-FT 369000

COLORADO RIVER MAIN STEM

## 09429600 COLORADO RIVER BELOW LAGUNA DAM, AZ-CA

LOCATION.--Lat 32°48'44", long 114°30'51", in SE¼NE¼ sec.35, T.15 S., R.24 E., San Bernardino meridian, in California, Imperial County, Hydrologic Unit 15030107, on right bank 1.4 mi (2.3 km) downstream from Laguna Dam, 2.8 mi (4.5 km) northeast of Bard, Calif., and 10 mi (16 km) northeast of Yuma, Ariz.

DRAINAGE AREA.--188,600 $mi^2$ (488,500 $km^2$), approximately, including 3,959 $mi^2$ (10,254 $km^2$) in Great Divide basin in southern Wyoming, which is noncontributing (previously considered part of the Missouri River basin).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1971 to current year.

GAGE.--Water-stage recorder. Datum of gage is 120.84 ft (36.832 m) National Geodetic Vertical Datum of 1929 (Bureau of Reclamation bench mark).

REMARKS.--Records good. Natural flow of Colorado River at this point is affected by transmountain diversions, storage reservoirs, power developments, ground-water withdrawals, diversions for irrigation, municipal, and industrial uses, and return flows from irrigated areas. Flow past station consists mainly of water released through Imperial Dam, sludge from the desilting basins at Imperial Dam, seepage through Imperial Dam, and seepage from the All-American Canal and the Gila Gravity Main Canal.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,030 $ft^3/s$ (142 $m^3/s$) Aug. 18, 1977, gage height, 12.88 ft (3.926 m); minimum daily, 71 $ft^3/s$ (2.01 $m^3/s$) May 29, 1973.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,080 $ft^3/s$ (87.2 $m^3/s$) Mar. 2, gage height, 9.98 ft (3.042 m); minimum daily, 209 $ft^3/s$ (5.92 $m^3/s$) Dec. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 250 | 218 | 247 | 495 | 1150 | 2530 | 368 | 301 | 643 | 649 | 574 | 530 |
| 2 | 250 | 315 | 244 | 1110 | 774 | 2850 | 341 | 490 | 486 | 368 | 435 | 441 |
| 3 | 327 | 501 | 244 | 1060 | 632 | 943 | 339 | 770 | 441 | 346 | 387 | 481 |
| 4 | 325 | 508 | 242 | 1160 | 639 | 425 | 320 | 853 | 429 | 335 | 390 | 766 |
| 5 | 325 | 493 | 244 | 1540 | 645 | 477 | 311 | 852 | 426 | 327 | 382 | 918 |
| 6 | 325 | 496 | 241 | 1170 | 694 | 473 | 309 | 859 | 429 | 300 | 376 | 911 |
| 7 | 325 | 522 | 225 | 999 | 651 | 600 | 322 | 847 | 322 | 284 | 368 | 905 |
| 8 | 325 | 536 | 209 | 893 | 589 | 551 | 296 | 842 | 261 | 501 | 362 | 892 |
| 9 | 325 | 511 | 224 | 960 | 389 | 463 | 302 | 877 | 251 | 589 | 360 | 901 |
| 10 | 325 | 405 | 218 | 1320 | 322 | 311 | 297 | 917 | 298 | 486 | 351 | 892 |
| 11 | 325 | 278 | 223 | 1950 | 321 | 300 | 432 | 885 | 354 | 360 | 362 | 870 |
| 12 | 325 | 269 | 356 | 2070 | 314 | 299 | 630 | 766 | 332 | 349 | 368 | 870 |
| 13 | 325 | 265 | 462 | 1970 | 311 | 258 | 563 | 681 | 311 | 354 | 362 | 870 |
| 14 | 325 | 243 | 449 | 1830 | 320 | 279 | 427 | 630 | 322 | 343 | 357 | 911 |
| 15 | 330 | 271 | 414 | 1850 | 275 | 425 | 361 | 612 | 362 | 349 | 314 | 921 |
| 16 | 360 | 260 | 415 | 1730 | 238 | 544 | 351 | 628 | 338 | 360 | 308 | 895 |
| 17 | 370 | 223 | 354 | 1720 | 241 | 504 | 347 | 760 | 314 | 365 | 311 | 889 |
| 18 | 330 | 375 | 304 | 1610 | 247 | 469 | 345 | 785 | 314 | 365 | 314 | 876 |
| 19 | 265 | 493 | 302 | 1540 | 250 | 386 | 365 | 785 | 311 | 368 | 332 | 905 |
| 20 | 269 | 474 | 307 | 1500 | 254 | 376 | 358 | 773 | 314 | 349 | 354 | 918 |
| 21 | 255 | 325 | 305 | 1350 | 259 | 369 | 343 | 772 | 314 | 338 | 351 | 910 |
| 22 | 248 | 266 | 295 | 1300 | 260 | 358 | 321 | 775 | 316 | 341 | 346 | 846 |
| 23 | 242 | 260 | 277 | 1260 | 349 | 349 | 329 | 778 | 314 | 341 | 341 | 787 |
| 24 | 237 | 260 | 274 | 928 | 464 | 333 | 282 | 808 | 308 | 346 | 330 | 730 |
| 25 | 244 | 257 | 275 | 789 | 423 | 329 | 260 | 847 | 306 | 346 | 314 | 882 |
| 26 | 238 | 215 | 277 | 806 | 291 | 715 | 267 | 744 | 300 | 360 | 322 | 904 |
| 27 | 221 | 218 | 231 | 716 | 263 | 944 | 271 | 727 | 308 | 371 | 324 | 909 |
| 28 | 220 | 255 | 1660 | 719 | 286 | 460 | 284 | 734 | 316 | 360 | 322 | 917 |
| 29 | 218 | 253 | 850 | 718 | --- | 493 | 318 | 727 | 324 | 349 | 322 | 915 |
| 30 | 220 | 250 | 329 | 748 | --- | 626 | 300 | 728 | 586 | 475 | 319 | 792 |
| 31 | 219 | --- | 290 | 766 | --- | 541 | --- | 721 | --- | 637 | 379 | --- |
| TOTAL | 8888 | 10215 | 10987 | 38577 | 11851 | 18980 | 10359 | 23274 | 10650 | 12011 | 11037 | 25154 |
| MEAN | 287 | 341 | 354 | 1244 | 423 | 612 | 345 | 751 | 355 | 387 | 356 | 838 |
| MAX | 370 | 536 | 1660 | 2070 | 1150 | 2850 | 630 | 917 | 643 | 649 | 574 | 921 |
| MIN | 218 | 215 | 209 | 495 | 238 | 258 | 260 | 301 | 251 | 284 | 308 | 441 |
| AC-FT | 17630 | 20260 | 21790 | 76520 | 23510 | 37650 | 20550 | 46160 | 21120 | 23820 | 21890 | 49890 |

CAL YR 1977 TOTAL 188628 MEAN 517 MAX 5000 MIN 209 AC-FT 374100
WTR YR 1978 TOTAL 191983 MEAN 526 MAX 2850 MIN 209 AC-FT 380800

09429600 COLORADO RIVER BELOW LAGUNA DAM, AZ-CA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--July 1972 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1976 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 03... | 0110 | 321 | 1450 | 8.1 | 25.5 | 380 | 228 | 105 | 29 | 165 | 3.7 |
| 10... | 0120 | 327 | 1370 | 8.3 | 28.0 | 370 | 221 | 97 | 31 | 150 | 3.4 |
| 17... | 0125 | 238 | 1610 | 7.8 | 22.0 | 390 | 224 | 102 | 33 | 200 | 4.4 |
| 24... | 0230 | 238 | 1420 | 7.9 | -- | 380 | 226 | 95 | 35 | 160 | 3.6 |
| 31... | 0120 | 217 | 1410 | 7.8 | 23.5 | 375 | 221 | 94 | 34 | 160 | 3.6 |
| NOV | | | | | | | | | | | |
| 07... | 0140 | 504 | 1390 | 7.9 | -- | 375 | 221 | 94 | 34 | 155 | 3.5 |
| 14... | 0545 | 548 | 1500 | 7.7 | 16.0 | 385 | 224 | 100 | 33 | 175 | 3.9 |
| 21... | 0145 | 393 | 1540 | 7.8 | 17.0 | 390 | 224 | 99 | 35 | 180 | 4.0 |
| 28... | 0130 | 266 | 1440 | 7.8 | 16.5 | 385 | 228 | 97 | 35 | 165 | 3.7 |
| DEC | | | | | | | | | | | |
| 05... | 0445 | 200 | 1470 | 7.9 | 20.0 | 385 | 222 | 98 | 34 | 170 | 3.8 |
| 12... | 0135 | 223 | 1370 | 7.8 | 20.5 | 375 | 221 | 95 | 34 | 150 | 3.4 |
| 19... | 0200 | 292 | 1480 | 7.9 | 14.5 | 385 | 222 | 98 | 34 | 170 | 3.8 |
| 26... | 0310 | 261 | 1530 | 7.8 | 16.5 | 390 | 226 | 101 | 34 | 180 | 4.0 |
| JAN | | | | | | | | | | | |
| 02... | 0135 | 1070 | 1400 | 7.9 | 16.5 | 375 | 218 | 97 | 32 | 155 | 3.5 |
| 09... | 0125 | 735 | 1590 | 7.9 | 14.5 | 420 | 244 | 103 | 40 | 185 | 3.9 |
| 16... | 0035 | 1590 | 1510 | 7.9 | 15.5 | 395 | 230 | 102 | 34 | 175 | 3.8 |
| 23... | 0200 | 1170 | 1530 | 7.9 | 16.5 | 405 | 238 | 103 | 36 | 175 | 3.8 |
| 30... | 0330 | 772 | 1600 | 7.9 | 14.0 | 415 | 241 | 106 | 37 | 185 | 3.9 |
| FEB | | | | | | | | | | | |
| 06... | 0050 | 634 | 1460 | 8.1 | 16.5 | 390 | 226 | 98 | 35 | 165 | 3.6 |
| 13... | 0140 | 300 | 1520 | 8.0 | 18.0 | 385 | 221 | 101 | 32 | 180 | 4.0 |
| 20... | 0300 | 261 | 1380 | 7.9 | 16.0 | 370 | 214 | 93 | 34 | 155 | 3.5 |
| 27... | 0050 | 281 | 1440 | 7.9 | 17.0 | 375 | 219 | 97 | 32 | 165 | 3.7 |
| MAR | | | | | | | | | | | |
| 06... | 0105 | 294 | 1320 | 7.9 | 18.5 | 365 | 216 | 96 | 31 | 140 | 3.2 |
| 13... | 0130 | 290 | 1490 | 7.8 | 17.0 | 385 | 221 | 100 | 33 | 175 | 3.9 |
| 20... | 0050 | 379 | 1350 | 7.9 | 19.0 | 365 | 216 | 97 | 30 | 150 | 3.4 |
| 27... | 0130 | 1490 | 1200 | 8.0 | 21.5 | 345 | 200 | 90 | 29 | 125 | 2.9 |
| APR | | | | | | | | | | | |
| 03... | 0050 | 338 | 1390 | 8.0 | 20.0 | 375 | 218 | 96 | 33 | 155 | 3.5 |
| 10... | 0045 | 242 | 1310 | 8.2 | 19.5 | 365 | 208 | 95 | 31 | 140 | 3.2 |
| 17... | 0140 | 338 | 1390 | 8.0 | 20.0 | 375 | 219 | 98 | 32 | 155 | 3.5 |
| 24... | 0500 | 280 | 1310 | 7.8 | 20.0 | 365 | 208 | 95 | 31 | 140 | 3.2 |
| MAY | | | | | | | | | | | |
| 01... | 0030 | 303 | 1310 | 8.1 | 18.5 | 365 | 208 | 94 | 32 | 140 | 3.2 |
| 08... | 0115 | 835 | 1330 | 8.0 | 23.5 | 375 | 212 | 96 | 33 | 140 | 3.1 |
| 15... | 0115 | 194 | 1360 | 8.0 | 24.0 | 380 | 222 | 98 | 33 | 145 | 3.2 |
| 22... | 0025 | 763 | 1300 | 8.0 | 23.5 | 365 | 208 | 94 | 32 | 140 | 3.2 |
| 29... | 0100 | 719 | 1340 | 8.0 | 28.0 | 380 | 221 | 96 | 34 | 140 | 3.1 |
| JUN | | | | | | | | | | | |
| 05... | 0100 | 415 | 1400 | 8.0 | 25.0 | 385 | 228 | 98 | 34 | 155 | 3.4 |
| 12... | 0035 | 316 | 1350 | 7.9 | 26.5 | 375 | 226 | 95 | 34 | 145 | 3.2 |
| 19... | 0140 | 295 | 1330 | 7.9 | 29.5 | 365 | 211 | 94 | 32 | 145 | 3.3 |
| 26... | 0040 | 232 | 1360 | 7.8 | 27.0 | 370 | 218 | 96 | 32 | 150 | 3.4 |
| JUL | | | | | | | | | | | |
| 03... | 0110 | 362 | 1310 | 7.8 | 26.0 | 360 | 214 | 93 | 31 | 140 | 3.2 |
| 10... | 0200 | 530 | 1340 | 8.0 | 29.5 | 370 | 218 | 93 | 34 | 145 | 3.3 |
| 17... | 0030 | 300 | 1320 | 7.8 | 29.5 | 360 | 211 | 90 | 33 | 145 | 3.3 |
| 24... | 0050 | 269 | 1330 | 8.0 | 28.5 | 360 | 209 | 90 | 33 | 145 | 3.3 |
| 31... | 0205 | 586 | 1310 | 7.9 | 31.0 | 350 | 202 | 86 | 33 | 145 | 3.4 |
| AUG | | | | | | | | | | | |
| 07... | 0100 | 335 | 1360 | 7.9 | 29.0 | 370 | 219 | 93 | 34 | 150 | 3.4 |
| 14... | 0235 | 314 | 1340 | 7.8 | 29.0 | 365 | 216 | 92 | 33 | 145 | 3.3 |
| 21... | 0140 | 308 | 1330 | 7.9 | 29.0 | 365 | 216 | 91 | 34 | 145 | 3.3 |
| 28... | 0110 | 290 | 1390 | 7.9 | 26.5 | 370 | 216 | 97 | 31 | 155 | 3.5 |
| SEP | | | | | | | | | | | |
| 04... | 0010 | 924 | 1340 | 8.0 | 29.0 | 365 | 218 | 94 | 32 | 145 | 3.3 |
| 11... | 0200 | 892 | 1320 | 7.9 | 27.0 | 360 | 211 | 91 | 32 | 145 | 3.3 |
| 18... | 0115 | 921 | 1330 | 7.9 | 25.5 | 365 | 214 | 93 | 32 | 145 | 3.3 |
| 25... | 0030 | 816 | 1350 | 7.9 | 27.0 | 370 | 221 | 94 | 33 | 145 | 3.3 |

09429600 COLORADO RIVER BELOW LAGUNA DAM, AZ-CA--Continued

COOPERATION.--Daily specific conductance record furnished by Bureau of Reclamation.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,800 micromhos Feb. 9; minimum daily, 1,190 micromhos Mar. 28.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | POTASSIUM, DISSOLVED (MG/L AS K) | BICARBONATE (MG/L AS HCO3) | CARBONATE (MG/L AS CO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | SOLIDS, DISSOLVED (TONS PER AC-FT) | NITROGEN, NITRATE DISSOLVED (MG/L AS N) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 03... | 6.0 | 186 | 0 | 355 | 155 | .6 | 11 | 922 | 919 | 1.25 | .14 |
| 10... | 5.7 | 182 | 0 | 345 | 138 | .5 | 9.5 | 870 | 867 | 1.18 | .09 |
| 17... | 6.0 | 202 | 0 | 380 | 188 | .5 | 13 | 1020 | 1020 | 1.39 | .09 |
| 24... | 5.2 | 188 | 0 | 350 | 150 | .6 | 10 | 898 | 899 | 1.22 | .09 |
| 31... | 5.5 | 188 | 0 | 350 | 148 | .5 | 10 | 896 | 895 | 1.22 | .09 |
| NOV | | | | | | | | | | | |
| 07... | 5.6 | 188 | 0 | 350 | 140 | .4 | 9.8 | 888 | 882 | 1.21 | .11 |
| 14... | 5.5 | 196 | 0 | 360 | 170 | .5 | 12 | 954 | 954 | 1.30 | .11 |
| 21... | 5.7 | 202 | 0 | 365 | 175 | .5 | 12 | 972 | 973 | 1.32 | .09 |
| 28... | 5.2 | 192 | 0 | 360 | 150 | .5 | 8.9 | 918 | 917 | 1.25 | .11 |
| DEC | | | | | | | | | | | |
| 05... | 5.2 | 198 | 0 | 360 | 158 | .6 | 11 | 942 | 935 | 1.28 | .14 |
| 12... | 5.5 | 188 | 0 | 345 | 138 | .5 | 9.5 | 876 | 871 | 1.19 | .14 |
| 19... | 5.5 | 198 | 0 | 360 | 160 | .5 | 11 | 944 | 938 | 1.28 | .11 |
| 26... | 5.8 | 200 | 0 | 365 | 172 | .5 | 9.8 | 976 | 968 | 1.33 | .16 |
| JAN | | | | | | | | | | | |
| 02... | 5.2 | 192 | 0 | 350 | 142 | .5 | 10 | 894 | 887 | 1.22 | .11 |
| 09... | 5.7 | 214 | 0 | 385 | 175 | .5 | 10 | 1020 | 1010 | 1.39 | .16 |
| 16... | 5.4 | 202 | 0 | 365 | 165 | .5 | 9.0 | 964 | 957 | 1.31 | .18 |
| 23... | 5.4 | 204 | 0 | 370 | 170 | .5 | 10 | 982 | 970 | 1.34 | .14 |
| 30... | 5.5 | 212 | 0 | 380 | 182 | .6 | 10 | 1030 | 1010 | 1.40 | .14 |
| FEB | | | | | | | | | | | |
| 06... | 5.4 | 200 | 0 | 360 | 155 | .5 | 10 | 930 | 929 | 1.26 | .16 |
| 13... | 5.4 | 200 | 0 | 360 | 175 | .5 | 11 | 966 | 964 | 1.31 | .14 |
| 20... | 5.2 | 190 | 0 | 335 | 145 | .5 | 10 | 884 | 873 | 1.20 | .23 |
| 27... | 5.6 | 190 | 0 | 340 | 165 | .5 | 10 | 918 | 910 | 1.25 | .16 |
| MAR | | | | | | | | | | | |
| 06... | 5.3 | 182 | 0 | 330 | 130 | .6 | 10 | 838 | 834 | 1.14 | .16 |
| 13... | 5.6 | 200 | 0 | 345 | 172 | .4 | 10 | 942 | 941 | 1.28 | .20 |
| 20... | 5.6 | 182 | 0 | 325 | 145 | .4 | 10 | 856 | 854 | 1.16 | .25 |
| 27... | 5.2 | 176 | 0 | 310 | 108 | .5 | 8.4 | 764 | 764 | 1.04 | .09 |
| APR | | | | | | | | | | | |
| 03... | 5.5 | 192 | 0 | 335 | 148 | .5 | 8.8 | 878 | 877 | 1.19 | .11 |
| 10... | 5.4 | 192 | 0 | 325 | 128 | .5 | 10 | 830 | 830 | 1.13 | .07 |
| 17... | 5.6 | 190 | 0 | 330 | 152 | .4 | 8.8 | 880 | 876 | 1.20 | .07 |
| 24... | 5.4 | 192 | 0 | 325 | 128 | .5 | 9.0 | 834 | 829 | 1.13 | .07 |
| MAY | | | | | | | | | | | |
| 01... | 5.6 | 192 | 0 | 325 | 128 | .6 | 9.2 | 828 | 830 | 1.13 | .07 |
| 08... | 5.6 | 198 | 0 | 330 | 130 | .4 | 9.2 | 846 | 843 | 1.15 | .09 |
| 15... | 5.6 | 192 | 0 | 335 | 140 | .5 | 9.8 | 866 | 862 | 1.18 | .11 |
| 22... | 5.5 | 192 | 0 | 325 | 128 | .6 | 9.2 | 828 | 830 | 1.13 | .11 |
| 29... | 5.4 | 194 | 0 | 335 | 130 | .6 | 9.0 | 858 | 846 | 1.17 | .09 |
| JUN | | | | | | | | | | | |
| 05... | 5.6 | 192 | 0 | 340 | 150 | .6 | 9.8 | 886 | 888 | 1.20 | .11 |
| 12... | 5.5 | 182 | 0 | 335 | 140 | .5 | 9.2 | 854 | 855 | 1.16 | .09 |
| 19... | 5.4 | 188 | 0 | 335 | 128 | .5 | 9.0 | 840 | 842 | 1.14 | .07 |
| 26... | 5.5 | 186 | 0 | 340 | 135 | .6 | 8.8 | 858 | 860 | 1.17 | .09 |
| JUL | | | | | | | | | | | |
| 03... | 5.5 | 178 | 0 | 335 | 125 | .4 | 8.8 | 824 | 827 | 1.12 | .07 |
| 10... | 5.6 | 186 | 0 | 335 | 132 | .5 | 8.8 | 844 | 846 | 1.15 | .07 |
| 17... | 5.5 | 182 | 0 | 335 | 128 | .5 | 7.8 | 834 | 835 | 1.13 | .07 |
| 24... | 5.5 | 184 | 0 | 335 | 130 | .4 | 9.0 | 836 | 839 | 1.14 | .07 |
| 31... | 5.7 | 180 | 0 | 330 | 126 | .5 | 9.0 | 830 | 825 | 1.13 | .09 |
| AUG | | | | | | | | | | | |
| 07... | 5.4 | 184 | 0 | 340 | 138 | .5 | 9.8 | 862 | 862 | 1.17 | .05 |
| 14... | 5.5 | 182 | 0 | 335 | 134 | .5 | 9.5 | 850 | 845 | 1.16 | .07 |
| 21... | 5.6 | 182 | 0 | 335 | 130 | .5 | 9.2 | 840 | 841 | 1.14 | .09 |
| 28... | 5.5 | 188 | 0 | 345 | 142 | .5 | 9.8 | 878 | 879 | 1.19 | .07 |
| SEP | | | | | | | | | | | |
| 04... | 5.5 | 180 | 0 | 340 | 130 | .5 | 9.5 | 846 | 846 | 1.15 | .09 |
| 11... | 5.6 | 182 | 0 | 335 | 128 | .4 | 8.5 | 836 | 836 | 1.14 | .11 |
| 18... | 5.5 | 184 | 0 | 335 | 130 | .5 | 8.5 | 846 | 841 | 1.15 | .07 |
| 25... | 5.5 | 182 | 0 | 340 | 135 | .4 | 9.0 | 852 | 852 | 1.16 | .09 |

09429600 COLORADO RIVER BELOW LAGUNA DAM, AZ-CA--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1460 | 1420 | 1540 | 1380 | 1450 | 1240 | 1410 | 1330 | 1300 | 1310 | 1310 | 1310 |
| 2 | 1450 | 1440 | 1550 | 1420 | 1360 | 1220 | 1410 | 1320 | 1400 | 1310 | 1340 | 1350 |
| 3 | 1480 | 1410 | 1540 | 1600 | 1380 | 1210 | 1400 | 1280 | 1430 | 1320 | 1330 | 1370 |
| 4 | 1430 | 1360 | 1540 | 1660 | 1420 | 1260 | 1400 | 1270 | 1420 | 1320 | 1370 | 1350 |
| 5 | 1430 | 1350 | 1500 | 1660 | 1420 | 1260 | 1280 | 1280 | 1430 | 1320 | 1380 | 1330 |
| 6 | 1420 | 1370 | 1480 | 1570 | 1470 | 1320 | 1290 | 1290 | 1400 | 1330 | 1390 | 1310 |
| 7 | 1410 | 1390 | 1460 | 1570 | 1540 | 1350 | 1260 | 1290 | 1370 | 1320 | 1380 | 1300 |
| 8 | 1420 | 1420 | 1460 | 1570 | 1580 | 1360 | 1300 | 1340 | 1440 | 1320 | 1390 | 1330 |
| 9 | 1420 | 1470 | 1400 | 1610 | 1800 | 1520 | 1280 | 1310 | 1370 | 1300 | 1360 | 1350 |
| 10 | 1380 | 1570 | 1400 | 1630 | 1600 | 1550 | 1310 | 1290 | 1380 | 1350 | 1390 | 1350 |
| 11 | 1410 | 1540 | 1400 | 1610 | 1580 | 1490 | 1310 | 1270 | 1320 | 1330 | 1340 | 1330 |
| 12 | 1460 | 1510 | 1380 | 1570 | 1560 | 1510 | 1240 | 1290 | 1360 | 1350 | 1340 | 1310 |
| 13 | 1500 | 1500 | 1360 | 1560 | 1530 | 1490 | 1270 | 1330 | 1380 | 1340 | 1350 | 1290 |
| 14 | 1520 | 1560 | 1400 | 1550 | 1540 | 1370 | 1420 | 1360 | 1340 | 1370 | 1350 | 1280 |
| 15 | 1520 | 1470 | 1460 | 1540 | 1520 | 1280 | 1390 | 1370 | 1320 | 1350 | 1340 | 1290 |
| 16 | 1530 | 1420 | 1590 | 1520 | 1400 | 1260 | 1390 | 1330 | 1310 | 1320 | 1330 | 1310 |
| 17 | 1610 | 1400 | 1500 | 1540 | 1380 | 1310 | 1410 | 1300 | 1330 | 1330 | 1330 | 1320 |
| 18 | 1620 | 1410 | 1500 | 1550 | 1390 | 1430 | 1370 | 1270 | 1320 | 1330 | 1330 | 1330 |
| 19 | 1590 | 1380 | 1510 | 1550 | 1390 | 1380 | 1350 | 1300 | 1330 | 1370 | 1330 | 1310 |
| 20 | 1540 | 1370 | 1510 | 1550 | 1390 | 1360 | 1340 | 1320 | 1340 | 1320 | 1320 | 1310 |
| 21 | 1460 | 1540 | 1510 | 1550 | 1400 | 1340 | 1340 | 1290 | 1320 | 1320 | 1340 | 1320 |
| 22 | 1420 | 1580 | 1500 | 1540 | 1380 | 1360 | 1330 | 1300 | 1310 | 1330 | 1350 | 1310 |
| 23 | 1400 | 1570 | 1490 | 1540 | 1350 | 1360 | 1310 | 1280 | 1350 | 1330 | 1330 | 1350 |
| 24 | 1420 | 1550 | 1510 | 1550 | 1310 | 1360 | 1330 | 1300 | 1350 | 1340 | 1330 | 1350 |
| 25 | 1410 | 1540 | 1520 | 1560 | 1500 | 1290 | 1310 | 1300 | 1350 | 1330 | 1350 | 1350 |
| 26 | 1430 | 1510 | 1550 | 1570 | 1490 | 1300 | 1280 | 1290 | 1380 | 1320 | --- | 1330 |
| 27 | 1450 | 1440 | 1600 | 1570 | 1440 | 1210 | 1280 | 1320 | 1350 | 1290 | --- | 1300 |
| 28 | 1400 | 1440 | 1460 | 1590 | 1340 | 1190 | 1270 | 1330 | 1330 | 1310 | 1410 | 1300 |
| 29 | 1410 | 1470 | 1280 | 1570 | --- | 1260 | 1290 | 1350 | 1320 | 1330 | 1400 | 1300 |
| 30 | 1410 | 1500 | 1320 | 1620 | --- | 1230 | 1340 | 1310 | 1330 | 1330 | 1360 | 1310 |
| 31 | 1410 | --- | 1380 | 1570 | --- | 1270 | --- | 1280 | --- | 1310 | 1360 | --- |
| MEAN | 1460 | 1460 | 1470 | 1560 | 1460 | 1330 | 1330 | 1310 | 1360 | 1330 | 1350 | 1320 |

WTR YR 1978 MEAN 1400 MAX 1800 MIN 1190

## 09429690 COLORADO RIVER ABOVE GILA RIVER, NEAR YUMA, AZ

LOCATION.--Lat 32°43'22", long 114°32'46", in SE¼NE¼ sec.19, T.8 S., R.22 W., Yuma County, Hydrologic Unit 15030107, 0.6 mi (1.0 km) upstream from Gila River, 5 mi (8 km) east of Yuma, 9 mi (14 km) downstream from Laguna Dam, 12 mi (19 km) upstream from northerly international boundary, and 14 mi (22 km) downstream from Imperial Dam.

DRAINAGE AREA.--188,700 mi² (488,700 km²), approximately, including 3,959 mi² (10,254 km²) in Great Divide basin in southern Wyoming, which is noncontributing.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | HARDNESS (MG/L AS CACO3) | HARDNESS, NONCARBONATE (MG/L CACO3) | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) | SODIUM ADSORPTION RATIO | POTASSIUM, DISSOLVED (MG/L AS K) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 03... | 1330 | 1690 | 7.9 | 25.0 | 480 | 290 | 120 | 43 | 190 | 3.8 | 5.3 |
| 11... | 1320 | 1590 | 7.8 | 26.5 | 440 | 270 | 110 | 40 | 180 | 3.7 | 5.3 |
| 17... | 1335 | 1730 | 7.8 | 24.5 | 450 | 260 | 110 | 42 | 210 | 4.3 | 5.5 |
| 25... | 1355 | 1630 | 7.8 | 24.0 | 440 | 250 | 110 | 39 | 180 | 3.8 | 5.3 |
| 31... | 1130 | 1630 | 7.8 | 20.5 | 440 | 260 | 110 | 41 | 200 | 4.1 | 5.3 |
| NOV | | | | | | | | | | | |
| 07... | 1320 | 1500 | 7.9 | 19.0 | 400 | 230 | 100 | 36 | 190 | 4.1 | 5.3 |
| 14... | 1200 | 1670 | 7.7 | 18.0 | 440 | 250 | 110 | 39 | 210 | 4.4 | 5.7 |
| 21... | 1345 | 1660 | 7.8 | 16.0 | 440 | 250 | 110 | 39 | 210 | 4.4 | 5.6 |
| 28... | 1050 | 1600 | 7.7 | 17.0 | 460 | 280 | 120 | 40 | 190 | 3.8 | 5.2 |
| DEC | | | | | | | | | | | |
| 05... | 1330 | 1650 | 7.8 | 17.0 | 470 | 280 | 120 | 42 | 180 | 3.6 | 5.6 |
| 12... | 1110 | 1570 | 7.8 | 15.5 | 440 | 270 | 110 | 40 | 180 | 3.7 | 5.6 |
| 19... | 1355 | 1630 | 7.8 | 15.0 | 440 | 260 | 110 | 39 | 200 | 4.2 | 5.7 |
| JAN | | | | | | | | | | | |
| 03... | 1240 | 1630 | 7.9 | 15.5 | 410 | 240 | 100 | 39 | 200 | 4.3 | 5.8 |
| 09... | 1145 | 1640 | 7.9 | 14.5 | 430 | 260 | 110 | 38 | 190 | 4.0 | 5.5 |
| 16... | 1600 | 1510 | 8.0 | -- | 400 | 250 | 100 | 37 | 170 | 3.7 | 5.4 |
| 23... | 1440 | 1570 | 8.0 | 15.5 | 410 | 240 | 100 | 39 | 180 | 3.9 | 5.2 |
| 30... | 1050 | 1650 | 7.8 | 14.5 | 440 | 250 | 110 | 39 | 190 | 4.0 | 5.5 |
| FEB | | | | | | | | | | | |
| 06... | 1400 | 1540 | 8.0 | 17.0 | 400 | 230 | 100 | 36 | 180 | 3.9 | 5.4 |
| 13... | 1320 | 1670 | 7.9 | 18.0 | 440 | 250 | 110 | 39 | 200 | 4.2 | 5.5 |
| 21... | 1435 | 1550 | 7.9 | 16.5 | 430 | 250 | 110 | 37 | 180 | 3.8 | 5.1 |
| 27... | 1340 | 1600 | 7.9 | 18.5 | 430 | 250 | 110 | 38 | 180 | 3.8 | 5.2 |
| MAR | | | | | | | | | | | |
| 06... | 1345 | 1470 | 7.9 | 18.5 | 400 | 230 | 100 | 37 | 160 | 3.5 | 5.5 |
| 13... | 1100 | 1640 | 7.8 | 18.0 | 440 | 260 | 110 | 39 | 190 | 4.0 | 5.7 |
| 20... | 1025 | 1470 | 8.0 | 19.0 | 390 | 230 | 97 | 37 | 170 | 3.7 | 5.2 |
| 27... | 1340 | 1210 | 8.1 | 21.5 | 340 | 200 | 83 | 33 | 130 | 3.1 | 5.1 |
| APR | | | | | | | | | | | |
| 03... | 1340 | 1520 | 8.0 | 21.0 | 430 | 250 | 110 | 37 | 150 | 3.2 | 5.3 |
| 10... | 1100 | 1470 | 8.1 | 19.0 | 430 | 250 | 110 | 37 | 160 | 3.4 | 5.6 |
| 17... | 1325 | 1520 | 8.0 | 20.5 | 400 | 220 | 100 | 37 | 180 | 3.9 | 5.7 |
| 24... | 0810 | 1450 | 7.8 | 20.0 | 400 | 230 | 100 | 37 | 160 | 3.5 | 5.5 |
| MAY | | | | | | | | | | | |
| 01... | 1355 | 1470 | 7.9 | 21.0 | 420 | 240 | 110 | 36 | 160 | 3.4 | 5.9 |
| 08... | 1330 | 1400 | 8.0 | 23.5 | 380 | 210 | 93 | 35 | 150 | 3.4 | 5.8 |
| 15... | 1325 | 1450 | 8.1 | 27.0 | 390 | 220 | 98 | 35 | 160 | 3.5 | 5.9 |
| 22... | 1345 | 1350 | 8.0 | 27.5 | 390 | 220 | 97 | 35 | 150 | 3.3 | 5.2 |
| 30... | 1420 | 1370 | 7.9 | 26.5 | 390 | 230 | 99 | 35 | 160 | 3.5 | 6.2 |
| JUN | | | | | | | | | | | |
| 05... | 1400 | 1510 | 8.0 | 26.5 | 410 | 230 | 100 | 38 | 180 | 3.9 | 6.4 |
| 12... | 1050 | 1510 | 7.9 | 27.0 | 410 | 240 | 100 | 39 | 170 | 3.7 | 5.8 |
| 19... | 1330 | 1470 | 7.9 | 29.5 | 400 | 240 | 100 | 37 | 170 | 3.7 | 5.6 |
| 25... | 1340 | 1490 | 7.8 | 28.0 | 420 | 250 | 110 | 35 | 170 | 3.6 | 5.6 |
| JUL | | | | | | | | | | | |
| 03... | 1355 | 1430 | 7.9 | 29.5 | 410 | 250 | 100 | 38 | 150 | 3.2 | 5.4 |
| 10... | 1050 | 1440 | 7.9 | 23.1 | 410 | 250 | 98 | 41 | 170 | 3.6 | 5.2 |
| 17... | 1405 | 1450 | 7.9 | 30.5 | 390 | 230 | 100 | 34 | 170 | 3.7 | 5.1 |
| 24... | 1420 | 1460 | 7.9 | 30.5 | 400 | 240 | 100 | 37 | 160 | 3.5 | 5.4 |
| 31... | 1335 | 1380 | 7.9 | 31.5 | 360 | 210 | 92 | 32 | 150 | 3.4 | 5.5 |
| AUG | | | | | | | | | | | |
| 07... | 1340 | 1480 | 7.9 | 30.5 | 410 | 250 | 100 | 38 | 160 | 3.5 | 5.6 |
| 14... | 1500 | 1470 | 8.0 | 30.0 | 400 | 230 | 100 | 36 | 170 | 3.7 | 7.4 |
| 21... | 1115 | 1460 | 7.9 | 29.5 | 390 | 230 | 98 | 36 | 180 | 4.0 | 5.6 |
| 28... | 1310 | 1500 | 8.0 | 27.0 | 420 | 250 | 110 | 35 | 160 | 3.4 | 5.3 |
| SEP | | | | | | | | | | | |
| 05... | 1445 | 1360 | 8.1 | 30.5 | 370 | 220 | 93 | 33 | 150 | 3.4 | 5.5 |
| 11... | 1045 | 1380 | 8.0 | 26.0 | 380 | 230 | 95 | 35 | 150 | 3.3 | 5.0 |
| 18... | 1425 | 1390 | 8.0 | 26.0 | 410 | 250 | 110 | 33 | 160 | 3.4 | 5.1 |
| 25... | 1410 | 1400 | 8.0 | 26.5 | 380 | 220 | 98 | 33 | 160 | 3.6 | 4.8 |

09429690 COLORADO RIVER ABOVE GILA RIVER, NEAR YUMA, AZ--Continued

PERIOD OF RECORD.--October 1968 to current year.

REMARKS.--Unpublished chemical analyses (continuing record) for water years 1961-68 available from district office in Tucson, Ariz.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | BICARBONATE (MG/L AS HCO3) | CARBONATE (MG/L AS CO3) | SULFATE DISSOLVED (MG/L AS SO4) | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | SOLIDS, DISSOLVED (TONS PER AC-FT) | NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) | BORON, DISSOLVED (UG/L AS B) | IRON, DISSOLVED (UG/L AS FE) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 03... | 230 | 0 | 440 | .6 | 15 | 1080 | 1130 | 1.47 | -- | 250 | 10 |
| 11... | 210 | 0 | 410 | .6 | 15 | 1030 | 1040 | 1.40 | -- | 240 | 20 |
| 17... | 230 | 0 | 390 | .8 | 18 | 1110 | 1090 | 1.51 | -- | 290 | 10 |
| 25... | 220 | 0 | 400 | .6 | 15 | 1050 | 1040 | 1.43 | -- | 250 | 20 |
| 31... | 220 | 0 | 400 | .6 | 16 | 1050 | 1060 | 1.43 | -- | 250 | 0 |
| NOV | | | | | | | | | | | |
| 01... | -- | -- | -- | -- | -- | 1030 | -- | 1.40 | -- | -- | -- |
| 07... | 210 | 0 | 390 | .6 | 13 | 966 | 999 | 1.31 | -- | 220 | 30 |
| 14... | 230 | 0 | 430 | .6 | 16 | 1090 | 1130 | 1.48 | -- | 280 | 0 |
| 21... | 220 | 0 | 410 | .7 | 15 | 1080 | 1100 | 1.47 | -- | 270 | 0 |
| 28... | 220 | 0 | 400 | .5 | 14 | 1020 | 1050 | 1.43 | -- | 250 | 20 |
| DEC | | | | | | | | | | | |
| 05... | 230 | 0 | 410 | .7 | 15 | 1070 | 1070 | 1.46 | -- | 270 | 10 |
| 12... | 210 | 0 | 370 | .7 | 14 | 1020 | 994 | 1.39 | -- | 250 | 10 |
| 19... | 210 | 0 | 400 | .6 | 15 | 1050 | 1060 | 1.43 | -- | 260 | 10 |
| 30... | -- | -- | -- | -- | -- | 934 | -- | 1.27 | -- | -- | -- |
| JAN | | | | | | | | | | | |
| 03... | 210 | 0 | 390 | .6 | 13 | 1050 | 1030 | 1.43 | -- | 260 | 10 |
| 09... | 210 | 0 | 430 | .6 | 15 | 1060 | 1070 | 1.44 | -- | 250 | 0 |
| 16... | 190 | 0 | 370 | .4 | 12 | 966 | 959 | 1.31 | -- | 230 | 20 |
| 23... | 210 | 0 | 410 | .6 | 12 | 1010 | 1020 | 1.37 | -- | 230 | 10 |
| 30... | 220 | 0 | 390 | .6 | 14 | 1060 | 1040 | 1.44 | -- | 260 | 0 |
| FEB | | | | | | | | | | | |
| 06... | 210 | 0 | 380 | .6 | 13 | 990 | 989 | 1.35 | -- | 230 | 10 |
| 13... | 230 | 0 | 380 | .7 | 16 | 1070 | 1050 | 1.46 | -- | 260 | 20 |
| 21... | 210 | 0 | 370 | .6 | 14 | 992 | 990 | 1.35 | -- | 230 | 0 |
| 27... | 220 | 0 | 370 | .6 | 15 | 1020 | 1010 | 1.39 | -- | 250 | 20 |
| MAR | | | | | | | | | | | |
| 06... | 210 | 0 | 340 | .6 | 11 | 940 | 908 | 1.28 | -- | 220 | 0 |
| 13... | 210 | 0 | 380 | .6 | 11 | 1050 | 1030 | 1.43 | -- | 250 | 0 |
| 20... | 200 | 0 | 390 | .5 | 11 | 948 | 960 | 1.29 | -- | 230 | 10 |
| 27... | 180 | 0 | 320 | .4 | 8.7 | 774 | 779 | 1.05 | -- | 170 | 10 |
| APR | | | | | | | | | | | |
| 03... | 210 | 0 | 350 | .6 | 13 | 974 | 940 | 1.32 | -- | 230 | 20 |
| 10... | 220 | 0 | 360 | .5 | 13 | 940 | 955 | 1.28 | -- | 220 | 20 |
| 17... | 220 | 0 | 350 | .6 | 13 | 978 | 965 | 1.33 | -- | 230 | 20 |
| 24... | 210 | 0 | 360 | .6 | 12 | 926 | 929 | 1.26 | -- | 220 | 10 |
| MAY | | | | | | | | | | | |
| 01... | 220 | 0 | 350 | .5 | 12 | 934 | 933 | 1.27 | -- | 230 | 20 |
| 08... | 200 | 0 | 350 | .5 | 11 | 890 | 884 | 1.21 | -- | 210 | 0 |
| 15... | 210 | 0 | 360 | .5 | 12 | 926 | 925 | 1.26 | -- | 220 | 0 |
| 22... | 200 | 0 | 340 | .5 | 10 | 868 | 867 | 1.18 | -- | 200 | 30 |
| 30... | 200 | 0 | 340 | .5 | 11 | 876 | 891 | 1.19 | -- | 200 | 0 |
| JUN | | | | | | | | | | | |
| 05... | 210 | 0 | 370 | .6 | 12 | 968 | 981 | 1.32 | -- | 230 | 0 |
| 12... | 210 | 0 | 360 | .6 | 14 | 960 | 953 | 1.31 | -- | 230 | 0 |
| 19... | 200 | -- | 360 | .6 | 13 | 936 | 945 | 1.27 | -- | 230 | 20 |
| 25... | 200 | 0 | 350 | .6 | 11 | 942 | 941 | 1.28 | -- | 230 | 20 |
| 26... | -- | -- | -- | -- | -- | 942 | 941 | 1.28 | -- | -- | -- |
| JUL | | | | | | | | | | | |
| 03... | -- | -- | 350 | .5 | 12 | 900 | 902 | 1.22 | -- | 230 | 20 |
| 10... | -- | -- | 350 | .6 | 12 | 912 | 933 | 1.24 | -- | 220 | 10 |
| 17... | 200 | 0 | 350 | .5 | 12 | 918 | 921 | 1.25 | .06 | 210 | 40 |
| 24... | 200 | 0 | 360 | .6 | 12 | 926 | 934 | 1.26 | .07 | 220 | 10 |
| 31... | 180 | 0 | 330 | .6 | 11 | 880 | 860 | 1.20 | .04 | 210 | <10 |
| AUG | | | | | | | | | | | |
| 07... | -- | -- | 370 | .6 | 13 | 970 | 944 | 1.32 | -- | 220 | 0 |
| 14... | 200 | 0 | 380 | .6 | 14 | 940 | 967 | 1.28 | .09 | 220 | 10 |
| 21... | 200 | 0 | 380 | .6 | 13 | 934 | 962 | 1.27 | .06 | 210 | 10 |
| 28... | 200 | 0 | 370 | .6 | 13 | 972 | 953 | 1.32 | .06 | 230 | 20 |
| SEP | | | | | | | | | | | |
| 05... | 180 | 0 | 350 | .5 | 11 | 880 | 872 | 1.20 | .06 | 220 | 10 |
| 11... | 190 | 0 | 350 | .5 | 11 | 874 | 881 | 1.19 | .13 | 220 | 20 |
| 18... | 190 | 0 | 370 | .4 | 11 | 894 | 934 | 1.22 | .08 | 220 | 20 |
| 25... | 190 | 0 | 350 | .5 | 11 | 930 | 902 | 1.26 | .07 | 220 | 40 |

< Actual value is known to be less than value shown.

## 09430500 GILA RIVER NEAR GILA, NM

LOCATION.--Lat 33°03'40", long 108°32'12", in NE¼NW¼ sec.30, T.14 S., R.16 W., Grant County, Hydrologic Unit 15040001, on left bank at Hooker damsite, 1.6 mi (2.6 km) upstream from Mogollon Creek, 7 mi (11 km) northeast of Gila, and at mile 572.5 (921.2 km).

DRAINAGE AREA.--1,864 $mi^2$ (4,828 $km^2$).

PERIOD OF RECORD.--April to December 1914, December 1927 to current year. Monthly discharge only December 1927 to September 1930, published in WSP 1313.

REVISED RECORDS.--WSP 1283: Drainage area. WSP 1313: 1944(M), 1949(M).

GAGE.--Water-stage recorder. Datum of gage is 4,655.8 ft (1,419.09 m) National Geodetic Vertical Datum of 1929 (river-profile survey). Prior to Dec. 31, 1928, at site 5 mi (8 km) upstream at different datum. Dec. 31, 1928, to Jan. 7, 1942, at site 200 ft (61 m) upstream at same datum.

REMARKS.--Records good. Diversions for irrigation of about 500 acres (2.0 $km^3$) above station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--51 years (water years 1928-78), 134 $ft^3/s$ (3.795 $m^3/s$) 97,080 acre-ft/yr (120 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 25,400 $ft^3/s$ (719 $m^3/s$) Sept. 29, 1941, gage height, 17.2 ft (5.24 m), from floodmark, from rating curve extended above 3,900 $ft^3/s$ (110 $m^3/s$) on basis of velocity-area studies; minimum, 14 $ft^3/s$ (0.40 $m^3/s$) July 15, 1971.

EXTREMES OUTSIDE PERIOD OF RECORD.--Other major floods occurred in November 1905, December 1906, and January 1916.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*) and peak discharges above base of 600 $ft^3/s$ (17 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|
| Jan. 31 | 1400 | 640 | 18.1 | 3.25 | 0.991 |
| Mar. 3 | Unknown | *4,790 | 136 | 6.76 | 2.060 |

Minimum, 22 $ft^3/s$ (0.62 $m^3/s$) July 7-10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 64 | 64 | 63 | 65 | 381 | 1190 | 315 | 161 | 82 | 38 | 36 | 42 |
| 2 | 62 | 60 | 62 | 64 | 257 | 8000 | 341 | 161 | 79 | 37 | 41 | 42 |
| 3 | 62 | 60 | 62 | 63 | 206 | 4000 | 327 | 169 | 73 | 34 | 42 | 46 |
| 4 | 62 | 60 | 62 | 62 | 177 | 2000 | 287 | 155 | 71 | 31 | 90 | 44 |
| 5 | 65 | 60 | 60 | 61 | 157 | 1180 | 261 | 138 | 68 | 29 | 128 | 42 |
| 6 | 72 | 65 | 60 | 60 | 151 | 1220 | 241 | 138 | 66 | 27 | 108 | 41 |
| 7 | 74 | 78 | 59 | 60 | 145 | 1040 | 229 | 142 | 67 | 25 | 99 | 39 |
| 8 | 76 | 78 | 59 | 59 | 141 | 805 | 214 | 146 | 66 | 25 | 95 | 37 |
| 9 | 78 | 74 | 58 | 58 | 135 | 633 | 213 | 134 | 64 | 25 | 104 | 35 |
| 10 | 80 | 74 | 59 | 59 | 128 | 531 | 210 | 124 | 62 | 25 | 79 | 33 |
| 11 | 78 | 72 | 59 | 64 | 129 | 476 | 200 | 116 | 58 | 25 | 66 | 32 |
| 12 | 74 | 72 | 59 | 63 | 130 | 423 | 180 | 115 | 54 | 28 | 56 | 31 |
| 13 | 72 | 72 | 59 | 61 | 126 | 403 | 168 | 121 | 52 | 31 | 49 | 30 |
| 14 | 70 | 69 | 59 | 59 | 133 | 372 | 161 | 126 | 50 | 33 | 43 | 31 |
| 15 | 69 | 69 | 59 | 63 | 136 | 358 | 166 | 133 | 48 | 32 | 40 | 31 |
| 16 | 67 | 69 | 59 | 84 | 137 | 332 | 176 | 146 | 47 | 30 | 37 | 32 |
| 17 | 65 | 67 | 58 | 84 | 132 | 298 | 180 | 157 | 44 | 28 | 36 | 31 |
| 18 | 65 | 65 | 59 | 88 | 125 | 273 | 180 | 155 | 42 | 27 | 35 | 30 |
| 19 | 65 | 65 | 58 | 81 | 120 | 270 | 178 | 148 | 40 | 27 | 34 | 30 |
| 20 | 64 | 64 | 59 | 86 | 117 | 306 | 175 | 139 | 38 | 28 | 42 | 30 |
| 21 | 64 | 62 | 58 | 85 | 124 | 370 | 166 | 148 | 36 | 29 | 43 | 31 |
| 22 | 64 | 62 | 57 | 88 | 140 | 424 | 161 | 145 | 35 | 31 | 44 | 32 |
| 23 | 64 | 62 | 57 | 86 | 159 | 424 | 157 | 132 | 35 | 33 | 49 | 34 |
| 24 | 64 | 62 | 60 | 88 | 170 | 436 | 150 | 124 | 33 | 35 | 50 | 36 |
| 25 | 62 | 62 | 60 | 86 | 183 | 395 | 145 | 121 | 32 | 40 | 46 | 37 |
| 26 | 60 | 62 | 60 | 83 | 195 | 370 | 148 | 116 | 31 | 40 | 53 | 40 |
| 27 | 60 | 62 | 63 | 82 | 211 | 351 | 153 | 111 | 31 | 44 | 65 | 42 |
| 28 | 60 | 63 | 65 | 81 | 322 | 347 | 164 | 106 | 33 | 38 | 59 | 40 |
| 29 | 60 | 63 | 72 | 84 | --- | 334 | 171 | 99 | 37 | 35 | 50 | 37 |
| 30 | 67 | 63 | 72 | 87 | --- | 326 | 170 | 92 | 36 | 35 | 45 | 36 |
| 31 | 65 | --- | 68 | 424 | --- | 319 | --- | 87 | --- | 33 | 43 | --- |
| TOTAL | 2074 | 1980 | 1884 | 2618 | 4667 | 28206 | 5987 | 4105 | 1510 | 978 | 1807 | 1074 |
| MEAN | 66.9 | 66.0 | 60.8 | 84.5 | 167 | 910 | 200 | 132 | 50.3 | 31.5 | 58.3 | 35.8 |
| MAX | 80 | 78 | 72 | 424 | 381 | 8000 | 341 | 169 | 82 | 44 | 128 | 46 |
| MIN | 60 | 60 | 57 | 58 | 117 | 270 | 145 | 87 | 31 | 25 | 34 | 30 |
| AC-FT | 4110 | 3930 | 3740 | 5190 | 9260 | 55950 | 11880 | 8140 | 3000 | 1940 | 3580 | 2130 |

CAL YR 1977 TOTAL 30843 MEAN 84.5 MAX 565 MIN 20 AC-FT 61180
WTR YR 1978 TOTAL 56890 MEAN 156 MAX 8000 MIN 25 AC-FT 112800

## 09431500 GILA RIVER NEAR REDROCK, NM

LOCATION.--Lat 32°43'37", long 108°40'30", in W½ sec.23, T.18 S., R.18 W., Grant County, Hydrologic Unit 15040002, on left bank 0.2 mi (0.3 km) downstream from Copper Canyon, 0.2 mi (0.3 km) upstream from lower end of box canyon, 4.7 mi (7.6 km) northeast of Redrock, 14 mi (23 km) downstream from Mangas Creek, and at mile 539.2 (867.6 km).

DRAINAGE AREA.--2,829 $mi^2$ (7,327 $km^2$).

PERIOD OF RECORD.--September 1904 to February 1905 (gage heights only). May 1905 to December 1906, January to December 1907 and July to October 1908 (gage height only). November 1908 to December 1910, January 1911 to January 1912 and May to June 1912 (gage heights only). August 1912 to September 1955, October 1962 to current year. Monthly or annual discharge only for some periods, published in WSP 1313. Published as "near Cliff" 1904-7.

REVISED RECORDS.--WSP 1213: 1906, 1911-15, 1931, 1936-37, 1939, 1941, 1944, 1945(P), 1946(M), 1947. WSP 1283: Drainage area. WSP 1926: 1955.

GAGE.--Water-stage recorder. Altitude of gage is 4,090 ft (1,247 m), from plane table survey. Prior to Dec. 31, 1907, nonrecording gage at site 13.5 mi (21.7 km) upstream at different datum. May 14, 1908, to July 16, 1909, nonrecording gage at site 0.2 mi (0.3 km) downstream at different datum.

REMARKS.--Records fair. Diversions for irrigation of about 5,000 acres (20 $km^2$) above station. National Weather Service gage height telemeter at station. Water quality records for the current year are published in Water Resources Data for New Mexico.

AVERAGE DISCHARGE.--62 years (water years 1906, 1909-10, 1913-55, 1963-78), 196 $ft^3/s$ (5.551 $m^3/s$), 142,000 acre-ft/yr (175 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 40,000 $ft^3/s$ (1,130 $m^3/s$) Sept. 29, 1941, gage height, 31 ft (9.4 m), from floodmarks, computed on basis of known peak flow for station below Blue Creek; minimum, 2.2 $ft^3/s$ (0.062 $m^3/s$) Aug. 5, 1947.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 12,700 $ft^3/s$ (360 $m^3/s$) Mar. 3, gage height, 15.6 ft (4.755 m), base discharge, 3,000 $ft^3/s$ (85 $m^3/s$); minimum, 3.1 $ft^3/s$ (0.09 $m^3/s$) July 20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 60 | 61 | 61 | 82 | 120 | 2390 | 533 | 180 | 88 | 33 | 13 | 51 |
| 2 | 53 | 61 | 62 | 80 | 578 | 10300 | 540 | 176 | 81 | 32 | 47 | 84 |
| 3 | 51 | 60 | 59 | 87 | 414 | 9080 | 504 | 186 | 77 | 30 | 134 | 44 |
| 4 | 53 | 56 | 63 | 77 | 325 | 3950 | 443 | 186 | 72 | 29 | 52 | 34 |
| 5 | 51 | 57 | 70 | 70 | 253 | 2060 | 381 | 160 | 66 | 29 | 74 | 26 |
| 6 | 63 | 69 | 71 | 66 | 220 | 2010 | 341 | 147 | 58 | 28 | 55 | 25 |
| 7 | 72 | 78 | 61 | 69 | 180 | 1650 | 318 | 147 | 48 | 28 | 48 | 24 |
| 8 | 64 | 93 | 66 | 81 | 160 | 1200 | 289 | 159 | 45 | 26 | 78 | 22 |
| 9 | 64 | 89 | 64 | 83 | 145 | 898 | 257 | 157 | 42 | 17 | 106 | 21 |
| 10 | 109 | 95 | 66 | 66 | 135 | 711 | 260 | 129 | 40 | 13 | 71 | 20 |
| 11 | 100 | 87 | 72 | 60 | 122 | 582 | 224 | 111 | 40 | 9.1 | 62 | 19 |
| 12 | 91 | 85 | 65 | 61 | 127 | 490 | 210 | 111 | 39 | 8.4 | 52 | 19 |
| 13 | 79 | 85 | 62 | 61 | 141 | 475 | 195 | 111 | 39 | 9.2 | 43 | 19 |
| 14 | 71 | 81 | 63 | 59 | 175 | 426 | 190 | 103 | 42 | 11 | 38 | 22 |
| 15 | 61 | 81 | 63 | 62 | 184 | 391 | 193 | 113 | 39 | 13 | 34 | 18 |
| 16 | 58 | 84 | 63 | 93 | 191 | 369 | 197 | 123 | 35 | 8.0 | 30 | 15 |
| 17 | 65 | 84 | 64 | 105 | 173 | 341 | 204 | 129 | 24 | 7.2 | 28 | 14 |
| 18 | 63 | 82 | 62 | 108 | 142 | 323 | 201 | 137 | 21 | 5.8 | 26 | 14 |
| 19 | 61 | 85 | 61 | 106 | 122 | 326 | 197 | 143 | 17 | 4.6 | 214 | 13 |
| 20 | 60 | 73 | 59 | 114 | 117 | 374 | 192 | 131 | 12 | 3.6 | 63 | 14 |
| 21 | 58 | 78 | 59 | 103 | 118 | 481 | 187 | 143 | 11 | 4.7 | 57 | 13 |
| 22 | 50 | 80 | 57 | 105 | 143 | 583 | 167 | 149 | 11 | 7.9 | 57 | 15 |
| 23 | 57 | 75 | 58 | 101 | 182 | 647 | 159 | 137 | 11 | 11 | 64 | 14 |
| 24 | 70 | 67 | 62 | 105 | 210 | 695 | 154 | 124 | 11 | 19 | 187 | 14 |
| 25 | 47 | 70 | 58 | 104 | 220 | 637 | 153 | 114 | 11 | 23 | 137 | 13 |
| 26 | 40 | 81 | 57 | 97 | 272 | 586 | 137 | 120 | 11 | 19 | 90 | 17 |
| 27 | 45 | 92 | 74 | 94 | 311 | 560 | 145 | 109 | 11 | 17 | 72 | 14 |
| 28 | 52 | 72 | 81 | 79 | 399 | 523 | 163 | 102 | 23 | 12 | 64 | 16 |
| 29 | 53 | 65 | 86 | 78 | --- | 508 | 167 | 88 | 30 | 9.2 | 56 | 13 |
| 30 | 57 | 62 | 89 | 86 | --- | 492 | 172 | 83 | 34 | 8.5 | 90 | 20 |
| 31 | 57 | --- | 87 | 160 | --- | 508 | --- | 90 | --- | 7.1 | 60 | --- |
| TOTAL | 1935 | 2288 | 2045 | 2702 | 5879 | 44566 | 7473 | 4098 | 1089 | 483.3 | 2202 | 667 |
| MEAN | 62.4 | 76.3 | 66.0 | 87.2 | 210 | 1438 | 249 | 132 | 36.3 | 15.6 | 71.0 | 22.2 |
| MAX | 109 | 95 | 89 | 160 | 578 | 10300 | 540 | 186 | 88 | 33 | 214 | 84 |
| MIN | 40 | 56 | 57 | 59 | 117 | 323 | 137 | 83 | 11 | 3.6 | 13 | 13 |
| AC-FT | 3840 | 4540 | 4060 | 5360 | 11660 | 88400 | 14820 | 8130 | 2160 | 959 | 4370 | 1320 |

CAL YR 1977 TOTAL 31890.0 MEAN 87.4 MAX 783 MIN 13 AC-FT 63250
WTR YR 1978 TOTAL 75427.3 MEAN 207 MAX 10300 MIN 3.6 AC-FT 149600

## 09432000 GILA RIVER BELOW BLUE CREEK, NEAR VIRDEN, NM

LOCATION.--Lat 32°38'53", long 108°50'43", in SE¼SW¼ sec.18, T.19 S., R.19 W., Grant County, Hydrologic Unit 15040002, on left bank at head of canyon, 1.4 mi (2.3 km) downstream from Blue Creek, 10 mi (16 km) east of Virden, and 16 mi (26 km) upstream from New Mexico-Arizona State line.

DRAINAGE AREA.--3,203 $mi^2$ (8,296 $km^2$), excluding Animas River basin.

PERIOD OF RECORD.--May to November 1914, March to September 1915, July 1927 to current year. July 1927 to May 1931 monthly discharge only, published in WSP 1313, computed as sum of flow at Virden Bridge, 9 mi (14 km) downstream, and in Sunset Canal. Published as "Gila River near Duncan, Ariz.," 1914-15 and as "Gila River at Fuller's Ranch, near Duncan, Ariz.," 1931-38.

REVISED RECORDS.--WSP 1283: Drainage area. WSP 1313: 1929, 1931-32(M).

GAGE.--Water-stage recorder. Altitude of gage is 3,875 ft (1,181.1 m) (from river-profile map). May 11, 1914, to Sept. 30, 1915, at site 6 mi (10 km) downstream, 1,000 ft (300 m) upstream from intake of Sunset Canal. June 1 to July 7, 1931, nonrecording gage at present site and datum.

REMARKS.--Records good. Station is above all Duncan Valley diversions. Diversions for irrigation of about 6,200 acres (25.1 $km^2$) above station.

AVERAGE DISCHARGE.--51 years (water years 1928-78), 176 $ft^3/s$ (4.984 $m^3/s$), 127,500 acre-ft/yr (157 $hm^3/yr$); median of yearly mean discharges, 130 $ft^3/s$ (3.68 $m^3/s$), 94,200 acre-ft/yr (120 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 41,700 $ft^3/s$ (1,180 $m^3/s$) Sept. 29, 1941, gage height, 25.78 ft (7.858 m); minimum, 1 $ft^3/s$ (0.028 $m^3/s$) July 14, 1934.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,800 $ft^3/s$ (221 $m^3/s$) Mar. 3, gage height, 14.25 ft (4.343 m), base discharge, 1,900 $ft^3/s$ (54 $m^3/s$); minimum daily, 3.5 $ft^3/s$ (.099 $m^3/s$) July 25, 26, Aug. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 51 | 55 | 69 | 78 | 514 | 937 | 546 | 179 | 73 | 15 | 3.5 | 54 |
| 2 | 49 | 57 | 68 | 78 | 364 | 5300 | 554 | 179 | 75 | 15 | 5.4 | 53 |
| 3 | 49 | 57 | 69 | 78 | 287 | 7340 | 542 | 174 | 73 | 14 | 24 | 89 |
| 4 | 49 | 56 | 67 | 79 | 240 | 4290 | 502 | 172 | 71 | 13 | 90 | 53 |
| 5 | 48 | 56 | 72 | 74 | 203 | 2550 | 458 | 154 | 64 | 13 | 48 | 30 |
| 6 | 66 | 61 | 72 | 73 | 181 | 2280 | 422 | 147 | 62 | 12 | 63 | 26 |
| 7 | 57 | 63 | 70 | 73 | 165 | 1940 | 396 | 150 | 56 | 12 | 51 | 25 |
| 8 | 55 | 69 | 69 | 74 | 156 | 1520 | 364 | 148 | 46 | 11 | 52 | 19 |
| 9 | 55 | 70 | 69 | 80 | 148 | 1260 | 337 | 150 | 46 | 11 | 94 | 19 |
| 10 | 59 | 72 | 69 | 75 | 141 | 1140 | 331 | 139 | 43 | 10 | 66 | 13 |
| 11 | 66 | 72 | 70 | 70 | 136 | 1060 | 313 | 123 | 40 | 9.7 | 57 | 13 |
| 12 | 64 | 71 | 70 | 68 | 138 | 960 | 287 | 114 | 36 | 9.0 | 47 | 12 |
| 13 | 61 | 71 | 69 | 68 | 145 | 910 | 266 | 111 | 34 | 8.0 | 35 | 10 |
| 14 | 58 | 71 | 68 | 69 | 172 | 850 | 250 | 108 | 33 | 7.6 | 29 | 10 |
| 15 | 55 | 71 | 68 | 69 | 224 | 795 | 243 | 102 | 32 | 7.6 | 28 | 9.9 |
| 16 | 54 | 71 | 67 | 70 | 253 | 758 | 243 | 103 | 30 | 6.7 | 26 | 9.4 |
| 17 | 55 | 72 | 68 | 86 | 214 | 707 | 240 | 110 | 28 | 5.8 | 23 | 8.8 |
| 18 | 55 | 73 | 68 | 94 | 188 | 666 | 237 | 113 | 26 | 5.4 | 21 | 8.0 |
| 19 | 55 | 71 | 67 | 94 | 170 | 629 | 235 | 114 | 24 | 5.0 | 58 | 7.9 |
| 20 | 55 | 73 | 66 | 97 | 165 | 638 | 222 | 113 | 21 | 4.5 | 161 | 7.9 |
| 21 | 55 | 73 | 66 | 95 | 165 | 661 | 214 | 114 | 18 | 4.5 | 54 | 8.4 |
| 22 | 51 | 73 | 65 | 95 | 179 | 721 | 203 | 118 | 17 | 4.5 | 57 | 9.0 |
| 23 | 50 | 73 | 65 | 92 | 203 | 749 | 194 | 116 | 16 | 4.5 | 48 | 9.4 |
| 24 | 56 | 72 | 67 | 95 | 235 | 767 | 185 | 105 | 14 | 4.0 | 113 | 9.4 |
| 25 | 54 | 71 | 67 | 95 | 243 | 717 | 179 | 96 | 12 | 3.5 | 77 | 9.5 |
| 26 | 49 | 71 | 66 | 94 | 271 | 666 | 172 | 92 | 12 | 3.5 | 73 | 9.5 |
| 27 | 49 | 83 | 68 | 91 | 289 | 652 | 166 | 94 | 12 | 5.0 | 58 | 10 |
| 28 | 50 | 76 | 77 | 85 | 313 | 602 | 170 | 88 | 14 | 4.8 | 53 | 9.7 |
| 29 | 51 | 71 | 84 | 84 | --- | 579 | 172 | 80 | 14 | 4.5 | 50 | 9.9 |
| 30 | 52 | 70 | 79 | 86 | --- | 562 | 177 | 76 | 14 | 4.3 | 62 | 8.4 |
| 31 | 55 | --- | 83 | 193 | --- | 554 | --- | 74 | --- | 4.3 | 59 | --- |
| TOTAL | 1688 | 2065 | 2162 | 2652 | 6102 | 43760 | 8820 | 3756 | 1056 | 242.7 | 1685.9 | 571.1 |
| MEAN | 54.5 | 68.8 | 69.7 | 85.5 | 218 | 1412 | 294 | 121 | 35.2 | 7.83 | 54.4 | 19.0 |
| MAX | 66 | 83 | 84 | 193 | 514 | 7340 | 554 | 179 | 75 | 15 | 161 | 89 |
| MIN | 48 | 55 | 65 | 68 | 136 | 554 | 166 | 74 | 12 | 3.5 | 3.5 | 7.9 |
| AC-FT | 3350 | 4100 | 4290 | 5260 | 12100 | 86800 | 17490 | 7450 | 2090 | 481 | 3340 | 1130 |

CAL YR 1977 TOTAL 33543.0 MEAN 91.9 MAX 1360 MIN 14 AC-FT 66530
WTR YR 1978 TOTAL 74560.7 MEAN 204 MAX 7340 MIN 3.5 AC-FT 147900

## 09432500 DIVERSIONS FROM GILA RIVER IN DUNCAN VALLEY, NM-AZ

LOCATION.--Duncan Valley lies along Gila River in Hidalgo County, N. Mex., and Greenlee County, Ariz. The part in New Mexico is also known as Virden Valley. The valley extends from a point about 8 mi (13 km) east of State line to vicinity of Guthrie, Ariz. Ten canals, listed in the following table in downstream order, and several pumps have rights to divert water from Gila River for irrigation in the valley. The first three canals listed divert in New Mexico and the others divert in Arizona. Intake of Sunset Canal at eastern end of valley, is 6 mi (10 km) downstream from station on Gila River below Blue Creek, near Virden, N. Mex. (09432000). Intake of York Canal, at western end, is about 14 mi (23 km) upstream from station on Gila River near Clifton, Ariz. (09442000).

PERIOD OF RECORD.--January 1936 to current year (combined monthly diversions and annual diversions by each canal). See WSP 1313 for summary of records of each canal (some since 1914) prior to 1951. Records of daily discharge for Sunset and New Model Canals have been published in reports of Geological Survey. Records of daily discharge since 1936 published in reports of Gila Water Commissioner.

GAGE.--Water-stage recorders and Parshall flumes.

REMARKS.--Record shows total diversions, unadjusted for return flows. Water obtained by pumping from ground water for irrigation in the valley is not included in these records. Decreed area for irrigation for the valley is 8,061 acres (32.6 $km^2$). Water was issued for 6,300 acres (25.5 $km^2$) during calendar year 1977.

COOPERATION.--Records furnished by Gila Water Commissioner.

ANNUAL DIVERSIONS, IN ACRE-FEET, TO EACH CANAL DURING CALENDAR YEAR 1977 AND WATER YEAR 1978

| Canal | | Calendar year 1977 | Water year 1978 |
|---|---|---|---|
| 09433000. | Sunset | 5,560 | 8,890 |
| 09436000. | New Model | 2,080 | 2,980 |
| 09437500. | Valley | 1,020 | 1,700 |
| 09439000. | Duncan | 0 | 0 |
| 09439500. | Black-McCleskey | 0 | 0 |
| 09440000. | Colmenero | 0 | 0 |
| 09440100. | Albert | 0 | 0 |
| 09440200. | Sexton | 0 | 0 |
| 09440300. | R. Sexton | 0 | 0 |
| 09440500. | York | 0 | 0 |
| | Direct pumping | 0 | 0 |
| | Total | 8,660 | 13,570 |

COMBINED MONTHLY DISCHARGE OF CANALS DIVERTING FROM GILA RIVER IN DUNCAN VALLEY, NM-AZ, DURING WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| Month | Discharge, in cubic feet per second | | | Diversions in acre-feet |
|---|---|---|---|---|
| | Maximum | Minimum | Mean | |
| October | 27.2 | 3.9 | 15.1 | 932 |
| November | 29.0 | 6.0 | 20.7 | 1,230 |
| December | 26.3 | 13.3 | 16.4 | 1,010 |
| CAL YR 1977 | 51.9 | 0 | 12.0 | 8,660 |
| January | 0 | 0 | 0 | 0 |
| February | 14.6 | 0 | .73 | 41 |
| March | 74.0 | 0 | 26.0 | 1,600 |
| April | 75.5 | 59.1 | 67.4 | 4,010 |
| May | 64.8 | 12.5 | 34.7 | 2,130 |
| June | 30.8 | 4.0 | 14.1 | 836 |
| July | 16.0 | 0 | 5.4 | 330 |
| August | 26.0 | 0 | 14.2 | 876 |
| September | 17.8 | 3.4 | 9.6 | 571 |
| WTR YR 1978 | 75.5 | 0 | 18.7 | 13,570 |

## 09442000 GILA RIVER NEAR CLIFTON, AZ

LOCATION.--Lat 32°57'57", long 109°18'35", in NE¼SE¼ sec.25, T.5 S., R.29 E., Greenlee County, Hydrologic Unit 15040002, on right bank 500 ft (150 m) downstream from bridge on county road, 6 mi (10 km) upstream from San Francisco River, and 6 mi (10 km) south of Clifton. Prior to Apr. 10, 1978, at site 500 ft (150 m) upstream.

DRAINAGE AREA.--4,010 $mi^2$ (10,386 $km^2$).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1910 to July 1918 (published as "at Guthrie"), October 1927 to current year. Monthly discharge only for some periods, published in WSP 1313.

REVISED RECORDS.--WSP 1059: 1911-12, 1915, 1917. WSP 1179: 1929(M), 1934(M). WSP 1283: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 3,336.82 ft (1,017.063 m) National Geodetic Vertical Datum of 1929 (adjusted). Nov. 6, 1910, to July 11, 1918, non-recording gage or water-stage recorder at two sites about 6 mi (10 km) upstream at Guthrie at different datums. March 1928 to June 1948 water-stage recorder at site 500 ft (150 m) upstream at datum 1.35 ft (0.411 m) lower. June 1948 to Oct. 17, 1967, water-stage recorder at site 0.2 mi (0.3 km) upstream at datum 2.68 ft (0.817 m) higher. Oct. 18, 1967, to June 23, 1974, at present site and datum. June 24, 1974 to Apr. 9, 1978 at site 500 ft (150 m) upstream at datum 0.44 ft (0.134 m) lower.

REMARKS.--Records good. Diversions for irrigation of about 14,300 acres (57.9 $km^2$) above station. Station is below all Duncan Valley diversions.

AVERAGE DISCHARGE.--57 years (water years 1912-17, 1928-78), 183 $ft^3/s$ (5.183 $m^3/s$), 132,600 acre-ft/yr (163 $hm^3/yr$); median of yearly mean discharges, 141 $ft^3/s$ (3.99 $m^3/s$), 102,200 acre-ft/yr (130 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 33,000 $ft^3/s$ (935 $m^3/s$) Oct. 21, 1972, gage height, 18.7 ft (5.70 m), from high-water mark in gage well; minimum daily, 5 $ft^3/s$ (0.14 $m^3/s$) Aug. 24, 1962.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 8,420 $ft^3/s$ (238 $m^2/s$) Mar. 4, gage height, 11.86 ft (3.615 m), base discharge 2,500 $ft^3/s$ (71 $m^3/s$); minimum daily, 6.3 $ft^3/s$ (0.178 $m^3/s$) July 31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 20 | 26 | 45 | 75 | 344 | 347 | 445 | 110 | 33 | 20 | 24 | 40 |
| 2 | 19 | 27 | 45 | 79 | 353 | 2460 | 448 | 123 | 29 | 19 | 23 | 90 |
| 3 | 17 | 33 | 45 | 81 | 257 | 5560 | 452 | 128 | 33 | 19 | 20 | 84 |
| 4 | 16 | 36 | 45 | 81 | 228 | 7240 | 390 | 123 | 32 | 18 | 34 | 76 |
| 5 | 17 | 38 | 45 | 82 | 206 | 5380 | 360 | 121 | 29 | 18 | 48 | 60 |
| 6 | 28 | 39 | 47 | 79 | 190 | 2130 | 330 | 110 | 28 | 19 | 41 | 142 |
| 7 | 118 | 52 | 50 | 75 | 172 | 1780 | 300 | 103 | 24 | 19 | 41 | 40 |
| 8 | 49 | 59 | 48 | 71 | 160 | 1480 | 270 | 106 | 24 | 19 | 41 | 35 |
| 9 | 36 | 63 | 46 | 73 | 152 | 1190 | 260 | 106 | 24 | 19 | 36 | 30 |
| 10 | 28 | 65 | 51 | 80 | 150 | 1030 | 248 | 110 | 23 | 19 | 60 | 30 |
| 11 | 26 | 67 | 54 | 79 | 150 | 900 | 230 | 98 | 23 | 18 | 70 | 25 |
| 12 | 41 | 56 | 54 | 69 | 142 | 835 | 210 | 86 | 23 | 18 | 58 | 25 |
| 13 | 49 | 49 | 54 | 68 | 141 | 810 | 176 | 79 | 23 | 18 | 50 | 20 |
| 14 | 47 | 49 | 54 | 68 | 170 | 790 | 157 | 82 | 23 | 18 | 43 | 20 |
| 15 | 42 | 47 | 55 | 74 | 216 | 760 | 149 | 82 | 21 | 18 | 36 | 20 |
| 16 | 29 | 46 | 53 | 79 | 247 | 740 | 137 | 79 | 19 | 18 | 33 | 18 |
| 17 | 22 | 45 | 53 | 84 | 226 | 720 | 132 | 72 | 19 | 17 | 29 | 18 |
| 18 | 21 | 48 | 53 | 100 | 202 | 710 | 135 | 66 | 19 | 17 | 26 | 18 |
| 19 | 22 | 52 | 53 | 102 | 182 | 680 | 135 | 66 | 19 | 19 | 25 | 18 |
| 20 | 21 | 48 | 53 | 111 | 170 | 670 | 140 | 64 | 21 | 19 | 55 | 18 |
| 21 | 20 | 49 | 53 | 108 | 168 | 650 | 126 | 65 | 21 | 19 | 122 | 18 |
| 22 | 20 | 45 | 56 | 102 | 174 | 630 | 117 | 65 | 23 | 48 | 102 | 19 |
| 23 | 19 | 48 | 55 | 100 | 190 | 610 | 112 | 65 | 24 | 30 | 68 | 19 |
| 24 | 19 | 48 | 54 | 98 | 209 | 590 | 108 | 74 | 23 | 26 | 60 | 18 |
| 25 | 19 | 46 | 52 | 98 | 223 | 550 | 105 | 68 | 21 | 25 | 68 | 19 |
| 26 | 20 | 49 | 55 | 99 | 233 | 530 | 105 | 59 | 19 | 31 | 77 | 18 |
| 27 | 20 | 52 | 55 | 93 | 247 | 510 | 103 | 46 | 21 | 412 | 62 | 18 |
| 28 | 20 | 56 | 56 | 93 | 247 | 480 | 98 | 43 | 24 | 50 | 62 | 20 |
| 29 | 20 | 53 | 75 | 88 | --- | 458 | 106 | 42 | 21 | 30 | 58 | 21 |
| 30 | 20 | 46 | 77 | 86 | --- | 445 | 110 | 40 | 21 | 10 | 54 | 20 |
| 31 | 24 | --- | 74 | 111 | --- | 442 | --- | 36 | --- | 6.3 | 50 | --- |
| TOTAL | 889 | 1437 | 1665 | 2686 | 5749 | 40107 | 6194 | 2517 | 707 | 1056.3 | 1576 | 1017 |
| MEAN | 28.7 | 47.9 | 53.7 | 86.6 | 205 | 1294 | 206 | 81.2 | 23.6 | 34.1 | 50.8 | 33.9 |
| MAX | 118 | 67 | 77 | 111 | 353 | 7240 | 452 | 128 | 33 | 412 | 122 | 142 |
| MIN | 16 | 26 | 45 | 68 | 141 | 347 | 98 | 36 | 19 | 6.3 | 20 | 18 |
| AC-FT | 1760 | 2850 | 3300 | 5330 | 11400 | 79550 | 12290 | 4990 | 1400 | 2100 | 3130 | 2020 |

CAL YR 1977 TOTAL 24895.6 MEAN 68.2 MAX 1420 MIN 9.3 AC-FT 49380
WTR YR 1978 TOTAL 65600.3 MEAN 180 MAX 7240 MIN 6.3 AC-FT 130100

09442000 GILA RIVER NEAR CLIFTON, AZ--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--January 1976 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | TUR-BID-ITY (JTU) | OXYGEN, DIS-SOLVED (MG/L) | COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 18... | 1030 | 20 | 655 | 8.5 | 20.0 | 30 | 8.2 | 70 | 140 | 0 | 41 | 8.6 |
| NOV | | | | | | | | | | | | |
| 16... | 1400 | 50 | 600 | 8.4 | 16.0 | 70 | 9.0 | 83 | 190 | 0 | 42 | 9.7 |
| DEC | | | | | | | | | | | | |
| 16... | 1000 | 57 | 590 | 8.3 | 9.0 | 60 | 10.0 | 24 | 150 | 0 | 45 | 9.4 |
| JAN | | | | | | | | | | | | |
| 17... | 1015 | 82 | 550 | 8.5 | 11.0 | 140 | 10.0 | 138 | 140 | 0 | 42 | 9.4 |
| FEB | | | | | | | | | | | | |
| 07... | 1430 | 150 | 420 | 8.2 | 15.5 | 170 | 8.2 | 130 | 140 | 0 | 42 | 7.5 |
| MAR | | | | | | | | | | | | |
| 24... | 1330 | 136 | 300 | 8.1 | 16.5 | -- | 8.6 | 143 | 95 | 0 | 28 | 6.2 |
| APR | | | | | | | | | | | | |
| 12... | 1300 | 142 | 460 | 8.2 | 20.0 | 120 | 9.2 | 94 | 140 | 0 | 41 | 8.4 |
| MAY | | | | | | | | | | | | |
| 17... | 1400 | 70 | 660 | 8.3 | 24.0 | 40 | 7.7 | 80 | 170 | 0 | 50 | 11 |
| JUN | | | | | | | | | | | | |
| 14... | 1300 | 20 | 630 | 8.2 | 37.5 | 2 | 7.3 | 54 | 120 | 0 | 34 | 8.9 |
| JUL | | | | | | | | | | | | |
| 19... | 1245 | 10 | 640 | 8.5 | 38.0 | 2 | 7.4 | 82 | 110 | 0 | 32 | 8.3 |
| AUG | | | | | | | | | | | | |
| 10... | 1430 | 70 | 750 | 8.2 | 29.0 | 1900 | 6.3 | 5400 | 170 | 0 | 53 | 10 |
| SEP | | | | | | | | | | | | |
| 15... | 1150 | 22 | 730 | 8.3 | 26.0 | 1 | 8.2 | K120 | 120 | 0 | 35 | 7.6 |

| DATE | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | BICAR-BONATE (MG/L AS HCO3) | CAR-BONATE (MG/L AS CO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER AC-FT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 18... | 90 | 3.3 | 4.3 | 230 | 0 | 81 | 36 | 1.9 | 43 | 421 | 419 | .57 |
| NOV | | | | | | | | | | | | |
| 16... | 82 | 3.0 | 3.7 | 230 | 3 | 69 | 31 | 1.9 | 41 | 371 | 397 | .50 |
| DEC | | | | | | | | | | | | |
| 16... | 75 | 2.7 | 3.7 | 220 | 0 | 71 | 30 | 1.9 | 39 | 371 | 386 | .50 |
| JAN | | | | | | | | | | | | |
| 17... | 66 | 2.4 | 3.1 | 210 | 1 | 67 | 29 | 1.2 | 17 | 338 | 341 | .46 |
| FEB | | | | | | | | | | | | |
| 07... | 42 | 1.6 | 2.7 | 170 | 0 | 48 | 22 | 1.9 | 34 | 270 | 286 | .37 |
| MAR | | | | | | | | | | | | |
| 24... | 28 | 1.2 | 2.5 | 120 | 0 | 38 | 13 | 1.4 | 29 | 200 | 209 | .27 |
| APR | | | | | | | | | | | | |
| 12... | 48 | 1.8 | 3.5 | 180 | 0 | 60 | 27 | 1.6 | 30 | 298 | 311 | .41 |
| MAY | | | | | | | | | | | | |
| 17... | 84 | 2.8 | 4.6 | 240 | 0 | 94 | 39 | 1.8 | 39 | 415 | 445 | .56 |
| JUN | | | | | | | | | | | | |
| 14... | 92 | 3.6 | 4.9 | 200 | 0 | 90 | 44 | 1.8 | 43 | 399 | 418 | .54 |
| JUL | | | | | | | | | | | | |
| 19... | 95 | 3.9 | 4.9 | 200 | 5 | 85 | 43 | 1.9 | 44 | 399 | 418 | .54 |
| AUG | | | | | | | | | | | | |
| 10... | 96 | 3.2 | 5.9 | 230 | 0 | 130 | 43 | 2.1 | 38 | 498 | 497 | .68 |
| SEP | | | | | | | | | | | | |
| 15... | 98 | 3.9 | 4.4 | 210 | 0 | 90 | 40 | 1.9 | 42 | 392 | 423 | .53 |

K Based on non-ideal colony count.

09442000 GILA RIVER NEAR CLIFTON, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) | NITROGEN, AMMONIA TOTAL (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | NITROGEN, TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | PHOSPHORUS, ORTHO. TOTAL (MG/L AS P) | PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 18... | .44 | -- | -- | .25 | .69 | .09 | -- | -- |
| NOV | | | | | | | | |
| 16... | .45 | -- | .74 | .29 | .74 | -- | .20 | -- |
| DEC | | | | | | | | |
| 16... | .33 | .48 | -- | .36 | .69 | .13 | -- | .07 |
| JAN | | | | | | | | |
| 17... | .27 | .25 | -- | .26 | .53 | .32 | -- | .02 |
| FEB | | | | | | | | |
| 07... | .28 | .34 | -- | .53 | .81 | .35 | -- | .06 |
| MAR | | | | | | | | |
| 24... | .33 | .71 | -- | .64 | .97 | .80 | -- | .07 |
| APR | | | | | | | | |
| 12... | .43 | .44 | -- | .57 | 1.0 | .46 | -- | .07 |
| MAY | | | | | | | | |
| 17... | .64 | .71 | -- | .31 | .95 | .09 | -- | .01 |
| JUN | | | | | | | | |
| 14... | .05 | .11 | -- | .67 | .72 | .02 | -- | .01 |
| JUL | | | | | | | | |
| 19... | .02 | .04 | -- | .39 | .41 | .03 | -- | .01 |
| AUG | | | | | | | | |
| 10... | 1.2 | 1.1 | -- | 5.4 | 6.6 | 4.4 | -- | .10 |
| SEP | | | | | | | | |
| 15... | .12 | .14 | -- | .57 | .69 | .03 | -- | .02 |

| DATE | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOVERABLE (UG/L AS BA) | BORON, TOTAL RECOVERABLE (UG/L AS B) | BORON, DISSOLVED (UG/L AS B) | CADMIUM TOTAL RECOVERABLE (UG/L AS CD) | CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) | COPPER, TOTAL RECOVERABLE (UG/L AS CU) | IRON, TOTAL RECOVERABLE (UG/L AS FE) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 18... | 5 | 100 | 240 | 160 | <10 | 30 | 10 | 1700 |
| NOV | | | | | | | | |
| 16... | 4 | 500 | 170 | 130 | 0 | 12 | 33 | 4000 |
| DEC | | | | | | | | |
| 16... | 4 | 100 | 180 | 120 | 1 | 0 | 60 | 4100 |
| JAN | | | | | | | | |
| 17... | 4 | 200 | 160 | 110 | 8 | 20 | 39 | 5400 |
| FEB | | | | | | | | |
| 07... | 3 | 200 | 110 | 80 | 1 | 20 | 41 | 10000 |
| MAR | | | | | | | | |
| 24... | 1 | 400 | 90 | 50 | 2 | 10 | 33 | 10000 |
| APR | | | | | | | | |
| 12... | 6 | 300 | 160 | 80 | 2 | 10 | 19 | 8100 |
| MAY | | | | | | | | |
| 17... | 4 | 0 | 190 | 140 | 1 | 10 | 13 | 2500 |
| JUN | | | | | | | | |
| 14... | 5 | 50 | 230 | 160 | 1 | 10 | 9 | 310 |
| JUL | | | | | | | | |
| 19... | 6 | 200 | 210 | 170 | 0 | 0 | 8 | 220 |
| AUG | | | | | | | | |
| 10... | 13 | 800 | 250 | 160 | 4 | 70 | 270 | 71000 |
| SEP | | | | | | | | |
| 15... | 6 | 0 | 260 | 170 | 1 | 0 | 10 | 870 |

< Actual value is known to be less than value shown.

09442000 GILA RIVER NEAR CLIFTON, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | IRON, DIS-SOLVED (UG/L AS FE) | LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) | MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) | MANGA-NESE, DIS-SOLVED (UG/L AS MN) | MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) | SELE-NIUM, TOTAL (UG/L AS SE) | SILVER, TOTAL RECOV-ERABLE (UG/L AS AG) | ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 18... | 70 | <100 | 60 | 4 | .3 | 0 | <10 | 30 |
| NOV | | | | | | | | |
| 16... | 30 | 9 | 160 | 0 | .0 | 1 | 0 | 40 |
| DEC | | | | | | | | |
| 16... | 30 | 21 | 170 | 0 | .2 | 0 | 0 | 50 |
| JAN | | | | | | | | |
| 17... | 20 | 46 | 270 | 0 | .0 | 0 | 0 | 70 |
| FEB | | | | | | | | |
| 07... | 20 | 19 | 480 | 0 | .3 | 1 | 0 | 60 |
| MAR | | | | | | | | |
| 24... | 30 | 19 | 540 | 0 | .0 | 4 | 1 | 100 |
| APR | | | | | | | | |
| 12... | 40 | 13 | 310 | 10 | .0 | 0 | 0 | 50 |
| MAY | | | | | | | | |
| 17... | 0 | 7 | 90 | 0 | .0 | 0 | 0 | 30 |
| JUN | | | | | | | | |
| 14... | 0 | 8 | 10 | 0 | .2 | 1 | 0 | 20 |
| JUL | | | | | | | | |
| 19... | 20 | 6 | 10 | 0 | .0 | 0 | 0 | 10 |
| AUG | | | | | | | | |
| 10... | 60 | 170 | 3300 | 0 | .0 | 2 | 0 | 380 |
| SEP | | | | | | | | |
| 15... | 80 | 6 | 40 | 20 | .1 | 0 | 0 | 50 |

| DATE | CARBON, ORGANIC TOTAL (MG/L AS C) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS (UG/L) | SEDI-MENT, SUS-PENDED (MG/L) | SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) |
|---|---|---|---|---|---|
| OCT | | | | | |
| 18... | 1.8 | .00 | 1 | -- | -- |
| NOV | | | | | |
| 16... | 3.2 | .00 | 6 | -- | -- |
| DEC | | | | | |
| 16... | 2.5 | .00 | 4 | -- | -- |
| JAN | | | | | |
| 17... | 4.3 | .00 | 2 | 483 | 107 |
| FEB | | | | | |
| 07... | 9.7 | .00 | 2 | -- | -- |
| MAR | | | | | |
| 24... | 11 | .00 | 2 | 17400 | 6390 |
| APR | | | | | |
| 12... | 6.2 | .00 | 2 | -- | -- |
| MAY | | | | | |
| 17... | 2.4 | .00 | 1 | -- | -- |
| JUN | | | | | |
| 14... | 1.2 | .00 | 2 | -- | -- |
| JUL | | | | | |
| 19... | 1.3 | .00 | 2 | -- | -- |
| AUG | | | | | |
| 10... | 42 | .00 | 5 | -- | -- |
| SEP | | | | | |
| 15... | -- | .00 | 0 | -- | -- |

< Actual value is known to be less than value shown.

## 09442680 SAN FRANCISCO RIVER NEAR RESERVE, NM

LOCATION.--Lat 33°44'12", long 108°46'14", in NE¼NW¼SE¼ sec.35, T.6 S., R.19 W., Catron County, Hydrologic Unit 15040004, on left bank 1,300 ft (400 m) downstream from Rainbow Bridge Canyon, 1.7 mi (2.7 km) northwest of Reserve, and at mile 563.1 (096.0 km).

DRAINAGE AREA.--350 $mi^2$ (907 $km^2$), approximately.

PERIOD OF RECORD.--March 1959 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 5,820 ft (1,774 m), from topographic map. Prior to Dec. 15, 1972, at site 1,800 ft (549 m) upstream at different datum.

REMARKS.--Records fair. Possible minor regulation by Luna Lake, 27 mi (43 km) upstream. Diversions for irrigation of about 500 acres (2.0 $km^2$) above station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--19 years, 22.9 $ft^3/s$ (0.649 $m^3/s$), 16,590 acre-ft/yr (20.5 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,900 $ft^3/s$ (337 $m^3/s$) Oct. 20, 1972, gage height, 7.47 ft (2.277 m) in gage well, 8.05 ft (2.454 m), from outside floodmarks, site and datum then in use, from rating curve extended above 9,000 $ft^3/s$ (255 $m^3/s$) on basis of velocity-area study; minimum, 1.0 $ft^3/s$ (0.028 $m^3/s$) Mar. 16, 1959.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage, about 15 ft (4.6 m), as determined in 1962 from old floodmarks. Major floods of Nov. 26, 1905 and Dec. 3, 1906, exceeded 20,000 $ft^3/s$ (566 $m^3/s$) at Alma (downstream). See WSP 1313.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 275 $ft^3/s$ (7.79 $m^3/s$) Mar. 1, gage height, 3.80 ft (1.158 m), no peak above base of 450 $ft^3/s$ (13 $m^3/s$); minimum, 1.5 $ft^3/s$ (0.042 $m^3/s$) July 20, 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5.7 | 5.9 | 5.5 | 6.0 | 9.5 | 99 | 60 | 7.9 | 3.0 | 2.9 | 17 | 6.1 |
| 2 | 5.3 | 5.9 | 5.5 | 5.8 | 9.2 | 141 | 62 | 9.6 | 2.8 | 2.6 | 13 | 5.4 |
| 3 | 5.3 | 5.8 | 5.7 | 5.7 | 8.5 | 113 | 53 | 9.0 | 2.7 | 2.4 | 8.8 | 4.9 |
| 4 | 5.6 | 5.8 | 5.4 | 5.9 | 8.3 | 93 | 44 | 8.0 | 2.6 | 2.4 | 6.7 | 4.1 |
| 5 | 5.8 | 6.0 | 5.4 | 5.9 | 8.5 | 92 | 41 | 7.4 | 2.4 | 2.3 | 5.8 | 4.9 |
| 6 | 6.3 | 7.1 | 5.3 | 6.0 | 8.9 | 101 | 36 | 8.6 | 2.5 | 2.2 | 4.5 | 4.7 |
| 7 | 7.4 | 8.0 | 5.0 | 6.1 | 8.9 | 87 | 33 | 9.1 | 2.6 | 2.0 | 2.7 | 4.7 |
| 8 | 6.1 | 7.3 | 5.2 | 5.7 | 8.8 | 75 | 29 | 8.0 | 2.4 | 2.1 | 5.3 | 4.4 |
| 9 | 24 | 6.6 | 5.2 | 5.7 | 8.5 | 73 | 28 | 7.2 | 2.2 | 2.1 | 5.2 | 4.3 |
| 10 | 8.6 | 6.2 | 4.9 | 6.3 | 8.4 | 74 | 28 | 6.7 | 2.0 | 2.2 | 4.6 | 3.9 |
| 11 | 11 | 6.1 | 4.8 | 6.5 | 10 | 72 | 26 | 6.6 | 1.9 | 8.1 | 3.9 | 3.9 |
| 12 | 8.5 | 6.2 | 4.8 | 6.2 | 8.4 | 67 | 23 | 6.2 | 1.9 | 4.1 | 4.9 | 3.6 |
| 13 | 6.5 | 6.0 | 4.8 | 6.0 | 8.0 | 63 | 21 | 5.7 | 2.1 | 3.4 | 5.4 | 3.5 |
| 14 | 5.9 | 6.2 | 4.5 | 6.0 | 9.0 | 66 | 17 | 5.5 | 2.0 | 3.8 | 8.0 | 3.5 |
| 15 | 5.6 | 6.2 | 4.7 | 7.1 | 8.9 | 58 | 16 | 5.4 | 2.1 | 8.0 | 6.1 | 3.1 |
| 16 | 5.4 | 6.2 | 4.8 | 6.8 | 8.4 | 49 | 15 | 5.5 | 2.0 | 5.7 | 4.8 | 4.0 |
| 17 | 5.9 | 6.1 | 4.2 | 7.1 | 7.6 | 46 | 14 | 5.1 | 2.0 | 3.9 | 4.0 | 9.5 |
| 18 | 6.4 | 6.1 | 4.7 | 7.3 | 7.1 | 48 | 13 | 4.1 | 2.0 | 3.1 | 3.2 | 6.1 |
| 19 | 6.7 | 6.0 | 5.0 | 6.9 | 7.1 | 54 | 13 | 3.9 | 2.0 | 3.2 | 6.4 | 5.3 |
| 20 | 6.6 | 6.0 | 4.1 | 6.9 | 7.7 | 63 | 12 | 4.7 | 2.0 | 2.0 | 20 | 5.1 |
| 21 | 6.6 | 5.9 | 4.0 | 7.0 | 8.4 | 69 | 11 | 4.6 | 1.8 | 1.8 | 11 | 4.9 |
| 22 | 6.8 | 5.8 | 5.0 | 6.6 | 8.4 | 72 | 11 | 4.7 | 1.8 | 3.0 | 16 | 9.4 |
| 23 | 6.8 | 5.6 | 5.5 | 6.6 | 8.6 | 87 | 9.6 | 4.5 | 1.9 | 2.8 | 16 | 5.7 |
| 24 | 6.7 | 5.7 | 5.2 | 6.7 | 8.5 | 98 | 9.2 | 4.1 | 1.9 | 4.0 | 27 | 7.9 |
| 25 | 6.5 | 5.9 | 5.1 | 6.4 | 8.3 | 88 | 9.1 | 4.1 | 1.7 | 4.1 | 13 | 11 |
| 26 | 6.5 | 6.0 | 5.1 | 6.7 | 8.4 | 77 | 8.2 | 3.9 | 1.9 | 3.8 | 13 | 7.1 |
| 27 | 6.4 | 6.0 | 5.7 | 6.9 | 8.5 | 71 | 7.8 | 3.8 | 2.0 | 3.7 | 11 | 6.1 |
| 28 | 6.6 | 6.0 | 5.7 | 7.3 | 16 | 68 | 7.7 | 3.6 | 2.6 | 3.3 | 8.2 | 5.7 |
| 29 | 6.7 | 5.9 | 5.9 | 7.5 | --- | 65 | 7.4 | 3.4 | 2.7 | 2.0 | 8.2 | 5.5 |
| 30 | 6.9 | 5.7 | 5.8 | 7.9 | --- | 61 | 7.4 | 3.3 | 3.5 | 2.6 | 7.6 | 5.3 |
| 31 | 6.3 | --- | 6.0 | 10 | --- | 60 | --- | 3.0 | --- | 3.4 | 7.3 | --- |
| TOTAL | 221.4 | 184.2 | 158.5 | 205.5 | 244.8 | 2350 | 672.4 | 177.2 | 67.0 | 103.0 | 278.6 | 163.6 |
| MEAN | 7.14 | 6.14 | 5.11 | 6.63 | 8.74 | 75.8 | 22.4 | 5.72 | 2.23 | 3.32 | 8.99 | 5.45 |
| MAX | 24 | 8.0 | 6.0 | 10 | 16 | 141 | 62 | 9.6 | 3.5 | 8.1 | 27 | 11 |
| MIN | 5.3 | 5.6 | 4.0 | 5.7 | 7.1 | 46 | 7.4 | 3.0 | 1.7 | 1.8 | 2.7 | 3.1 |
| AC-FT | 439 | 365 | 314 | 408 | 486 | 4660 | 1330 | 351 | 133 | 204 | 553 | 325 |

CAL YR 1977 TOTAL 2641.8 MEAN 7.24 MAX 115 MIN 1.4 AC-FT 5240
WTR YR 1978 TOTAL 4826.2 MEAN 13.2 MAX 141 MIN 1.7 AC-FT 9570

## 09443000 SAN FRANCISCO RIVER NEAR ALMA, NM

LOCATION.--Lat 33°22'05", long 108°54'35", in SW¼SE¼ sec.4, T.11 S., R.20 W., Catron County, Hydrologic Unit 15040004, on right bank 1.2 mi (1.9 km) downstream from Alma, 4 mi (6 km) northwest of Glenwood, 6 mi (10 km) upstream from Whitewater Creek, and at mile 523.5 (842.3 km).

DRAINAGE AREA.--1,546 $mi^2$ (4,004 $km^2$).

PERIOD OF RECORD.--September 1904 to January 1914, fragmentary (see WSP 1313), January 1964 to current year. Prior to October 1911, published as "at Alma."

GAGE.--Water-stage recorder. Altitude of gage is 4,842 ft (1,476 m), from topographic map. Prior to Aug. 11, 1912, nonrecording gages at various sites, within 500 ft (150 m) of each other, 0.8 mi (1.3 km) upstream, at different datums. Aug. 11, 1912, to Feb. 2, 1914, nonrecording gage at approximately present site and datum. Jan. 10, 1964, to Nov. 1, 1972, at datum 3.00 ft (0.91 m) higher.

REMARKS.--Records good. Diversions for irrigation of about 1,500 acres (6.1 $km^2$) above station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--14 years (water years 1965-78), 63.2 $ft^3/s$ (1.790 $m^3/s$), 45,790 acre-ft/yr (56.5 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 30,600 $ft^3/s$ (867 $m^3/s$) Oct. 20, 1972, gage height, 18.16 ft (5.535 m), present datum, from floodmarks in well, from rating curve extended above 3,500 $ft^3/s$ (99.1 $m^3/s$) on basis of slope-area measurement of peak flow; no flow many days.

EXTREMES OUTSIDE PERIOD OF RECORD.--Major floods probably occurred Jan. 19 and Oct. 14, 1916, when discharges of 60,000 $ft^3/s$ (1,700 $m^3/s$) or greater were computed at Clifton, AZ.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*) and peak discharges above base of 1,000 $ft^3/s$ (28 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|
| Mar. 2 | 1500 | *4,390 | 124 | 8.26 | 2.518 |
| Aug. 23 | 1730 | 1,600 | 45.3 | 6.30 | 1.920 |

No flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .00 | .00 | 10 | 7.1 | 17 | 427 | 161 | 7.7 | 2.5 | 1.6 | 4.5 | .60 |
| 2 | .00 | .00 | 8.7 | 7.1 | 16 | 2630 | 164 | 23 | 2.5 | 1.4 | 1.4 | .30 |
| 3 | .00 | 1.8 | 8.2 | 7.1 | 16 | 2220 | 139 | 23 | 2.1 | 1.4 | 30 | 2.5 |
| 4 | .00 | 6.9 | 8.2 | 6.8 | 15 | 945 | 129 | 24 | 1.9 | 1.3 | 33 | .40 |
| 5 | .00 | 7.8 | 8.2 | 6.8 | 14 | 572 | 113 | 27 | 1.9 | 1.4 | 13 | 10 |
| 6 | .00 | 29 | 7.8 | 7.1 | 14 | 545 | 106 | 27 | 2.1 | 1.4 | 8.6 | 1.2 |
| 7 | .00 | 30 | 6.9 | 6.8 | 14 | 394 | 95 | 29 | 2.2 | 1.3 | 3.5 | .40 |
| 8 | .00 | 24 | 6.9 | 7.1 | 14 | 273 | 87 | 27 | 2.2 | 1.3 | 25 | .40 |
| 9 | 35 | 20 | 6.9 | 7.1 | 14 | 213 | 84 | 25 | 2.2 | 1.2 | 13 | .30 |
| 10 | 140 | 18 | 7.4 | 7.4 | 14 | 187 | 78 | 23 | 2.2 | 1.2 | 6.5 | .30 |
| 11 | 33 | 16 | 7.4 | 8.3 | 16 | 180 | 70 | 14 | 2.2 | 1.2 | 2.1 | .10 |
| 12 | 24 | 15 | 7.4 | 8.3 | 19 | 168 | 61 | 5.5 | 2.1 | 1.2 | 14 | .10 |
| 13 | 21 | 15 | 7.4 | 8.3 | 18 | 168 | 54 | 5.3 | 1.9 | 1.3 | 3.9 | .10 |
| 14 | 19 | 14 | 6.9 | 8.3 | 20 | 159 | 50 | 4.5 | 1.9 | 1.6 | 1.9 | .00 |
| 15 | 18 | 14 | 6.5 | 9.2 | 20 | 151 | 44 | 4.3 | 2.1 | 1.6 | 1.6 | .00 |
| 16 | 16 | 12 | 6.9 | 9.5 | 21 | 137 | 40 | 3.7 | 2.2 | 1.4 | 1.4 | 1.4 |
| 17 | 15 | 12 | 6.0 | 10 | 21 | 129 | 37 | 3.5 | 2.1 | 1.4 | 1.3 | .00 |
| 18 | 14 | 11 | 6.9 | 11 | 19 | 129 | 31 | 3.5 | 1.9 | 1.3 | 1.3 | .70 |
| 19 | 14 | 11 | 6.9 | 11 | 18 | 153 | 27 | 3.5 | 1.9 | 1.3 | 1.3 | 1.8 |
| 20 | 13 | 9.6 | 5.6 | 12 | 18 | 153 | 32 | 3.5 | 1.8 | 1.4 | 1.3 | .75 |
| 21 | 13 | 10 | 3.8 | 12 | 18 | 189 | 35 | 3.5 | 1.8 | 1.4 | 11 | .60 |
| 22 | 13 | 10 | 3.8 | 12 | 18 | 203 | 30 | 3.5 | 1.8 | 11 | 48 | 1.0 |
| 23 | 12 | 10 | 7.4 | 13 | 18 | 228 | 23 | 3.3 | 1.8 | 1.8 | 58 | 1.2 |
| 24 | 8.4 | 10 | 6.9 | 13 | 11 | 235 | 22 | 3.3 | 1.6 | 1.4 | 19 | .80 |
| 25 | .00 | 10 | 6.9 | 12 | 11 | 225 | 16 | 3.1 | 1.6 | 1.3 | 31 | 9.4 |
| 26 | .00 | 9.1 | 6.9 | 12 | 11 | 205 | 14 | 2.9 | 1.6 | 8.8 | 24 | 20 |
| 27 | .00 | 9.1 | 6.9 | 12 | 11 | 195 | 12 | 2.9 | 1.8 | 2.5 | 13 | 12 |
| 28 | .00 | 9.1 | 7.1 | 11 | 15 | 191 | 12 | 2.7 | 2.9 | 1.3 | 8.6 | 8.3 |
| 29 | .00 | 9.1 | 7.8 | 11 | --- | 180 | 10 | 2.5 | 1.9 | 1.0 | 2.9 | 6.0 |
| 30 | .00 | 9.6 | 7.8 | 12 | --- | 166 | 10 | 2.7 | 1.8 | 1.0 | 7.1 | .00 |
| 31 | .00 | --- | 7.8 | 14 | --- | 161 | --- | 2.5 | --- | 1.0 | 1.9 | --- |
| TOTAL | 408.40 | 363.10 | 220.2 | 300.3 | 451 | 12091 | 1786 | 319.9 | 60.5 | 59.7 | 393.1 | 80.65 |
| MEAN | 13.2 | 12.1 | 7.10 | 9.69 | 16.1 | 390 | 59.5 | 10.3 | 2.02 | 1.93 | 12.7 | 2.69 |
| MAX | 140 | 30 | 10 | 14 | 21 | 2630 | 164 | 29 | 2.9 | 11 | 58 | 20 |
| MIN | .00 | .00 | 3.8 | 6.8 | 11 | 129 | 10 | 2.5 | 1.6 | 1.0 | 1.3 | .00 |
| AC-FT | 810 | 720 | 437 | 596 | 895 | 23980 | 3540 | 635 | 120 | 118 | 780 | 160 |

CAL YR 1977 TOTAL 5204.60 MEAN 14.3 MAX 275 MIN .00 AC-FT 10320
WTR YR 1978 TOTAL 16533.85 MEAN 45.3 MAX 2630 MIN .00 AC-FT 32790

## 09444000 SAN FRANCISCO RIVER NEAR GLENWOOD, NM

LOCATION.--Lat 33°14'48", long 108°52'47", in NE¼NW¼ sec.23, T.12 S., R.20 W., Catron County, Hydrologic Unit 15040004, on left bank 0.2 mi (0.3 km) upstream from hot springs, 5 mi (8 km) south of Glenwood, 6 mi (10 km) downstream from Whitewater Creek, and at mile 511.5 (823.0 km).

DRAINAGE AREA.--1,653 $mi^2$ (4,281 $km^2$).

PERIOD OF RECORD.--October 1927 to current year. Monthly discharge only for some periods, published in WSP 1313.

REVISED RECORDS.--WSP 1213: 1931, 1934, 1936-37, 1940-42, 1943-44(M), 1945-47. WSP 1283: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 4,560 ft (1,390 m), from topographic map; prior to Feb. 15, 1934, at site 4.5 mi (7.2 km) upstream at datum 98.82 ft (30.120 m) higher.

REMARKS.--Records good. Diversions for irrigation of about 2,000 acres (8.1 $km^2$) above station. National Weather Service gage height telemeter at station. Water quality records for the current year are published in Water Resources Data for New Mexico.

AVERAGE DISCHARGE.--51 years, 69.8 $ft^3/s$ (1.977 $m^3/s$), 50,570 acre-ft/yr (62.4 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 34,100 $ft^3/s$ (966 $m^3/s$) Oct. 20, 1972, gage height, 16.61 ft (5.063 m), from rating curve extended above 22,000 $ft^3/s$ (623 $m^3/s$); minimum, 1.5 $ft^3/s$ (0.042 $m^3/s$) Aug. 6, 1961.

EXTREMES OUTSIDE PERIOD OF RECORD.--Major floods probably occurred Jan. 19 and Oct. 14, 1916, when discharges of 60,000 $ft^3/s$ (1,700 $m^3/s$) or greater were computed for station at Clifton, AZ. On Nov. 26, 1905, a peak of 25,000 $ft^3/s$ (708 $m^3/s$) was measured (by float-area method) at station at Alma (about 12 mi or 19 km upstream, drainage area, 1, 560 $mi^2$ or 4,040 $km^2$); a similar measurement of 21,000 $ft^3/s$ (595 $m^3/s$) was made at the Alma station for peak of Dec. 3, 1906.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*) and peak discharges above base of 800 $ft^3/s$ (23 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|
| Mar. 2 | 1600 | *3,750 | 106 | 8.35 | 2.545 |
| July 22 | 1545 | 1,380 | 39.1 | 5.74 | 1.750 |

Minimum, 15 $ft^3/s$ (0.42 $m^3/s$) at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 22 | 25 | 25 | 25 | 33 | 502 | 249 | 60 | 31 | 21 | 20 | 28 |
| 2 | 20 | 24 | 26 | 24 | 34 | 2870 | 246 | 64 | 29 | 18 | 27 | 42 |
| 3 | 19 | 24 | 26 | 23 | 33 | 2750 | 223 | 63 | 29 | 18 | 40 | 26 |
| 4 | 22 | 24 | 25 | 23 | 33 | 1080 | 195 | 56 | 32 | 19 | 76 | 25 |
| 5 | 23 | 25 | 24 | 24 | 32 | 566 | 174 | 57 | 30 | 19 | 57 | 30 |
| 6 | 31 | 31 | 24 | 24 | 33 | 558 | 160 | 67 | 30 | 17 | 33 | 25 |
| 7 | 27 | 44 | 23 | 24 | 33 | 461 | 148 | 71 | 29 | 16 | 27 | 23 |
| 8 | 29 | 39 | 23 | 23 | 33 | 341 | 144 | 69 | 27 | 17 | 30 | 22 |
| 9 | 25 | 36 | 24 | 23 | 32 | 268 | 137 | 58 | 26 | 16 | 49 | 23 |
| 10 | 178 | 35 | 24 | 24 | 32 | 250 | 124 | 50 | 27 | 16 | 29 | 22 |
| 11 | 58 | 34 | 23 | 24 | 33 | 245 | 110 | 57 | 27 | 17 | 25 | 22 |
| 12 | 39 | 33 | 22 | 24 | 36 | 222 | 104 | 53 | 27 | 17 | 28 | 19 |
| 13 | 36 | 32 | 22 | 24 | 37 | 224 | 101 | 57 | 26 | 17 | 28 | 16 |
| 14 | 33 | 31 | 22 | 24 | 39 | 203 | 100 | 67 | 29 | 16 | 24 | 19 |
| 15 | 31 | 32 | 24 | 25 | 39 | 196 | 100 | 74 | 28 | 15 | 23 | 21 |
| 16 | 31 | 31 | 22 | 26 | 40 | 174 | 98 | 72 | 26 | 16 | 23 | 20 |
| 17 | 29 | 30 | 20 | 26 | 40 | 153 | 97 | 60 | 26 | 16 | 21 | 22 |
| 18 | 29 | 30 | 24 | 26 | 39 | 150 | 87 | 56 | 25 | 15 | 21 | 22 |
| 19 | 27 | 31 | 24 | 26 | 37 | 162 | 75 | 46 | 23 | 15 | 21 | 21 |
| 20 | 27 | 29 | 23 | 27 | 36 | 191 | 69 | 42 | 22 | 15 | 22 | 20 |
| 21 | 26 | 29 | 23 | 28 | 36 | 240 | 77 | 47 | 24 | 15 | 20 | 20 |
| 22 | 24 | 30 | 22 | 28 | 36 | 275 | 78 | 50 | 23 | 81 | 64 | 20 |
| 23 | 24 | 30 | 23 | 28 | 36 | 311 | 66 | 47 | 24 | 38 | 71 | 21 |
| 24 | 23 | 29 | 25 | 27 | 36 | 334 | 61 | 44 | 24 | 30 | 59 | 20 |
| 25 | 23 | 28 | 24 | 26 | 37 | 311 | 60 | 41 | 24 | 28 | 52 | 20 |
| 26 | 23 | 28 | 23 | 26 | 37 | 280 | 65 | 39 | 24 | 36 | 56 | 35 |
| 27 | 22 | 28 | 23 | 27 | 37 | 262 | 73 | 37 | 25 | 32 | 44 | 26 |
| 28 | 22 | 28 | 22 | 26 | 38 | 254 | 74 | 33 | 31 | 24 | 39 | 28 |
| 29 | 22 | 28 | 24 | 27 | --- | 249 | 67 | 32 | 29 | 22 | 35 | 21 |
| 30 | 25 | 26 | 24 | 26 | --- | 237 | 61 | 35 | 23 | 20 | 37 | 19 |
| 31 | 25 | --- | 25 | 31 | --- | 234 | --- | 32 | --- | 20 | 32 | --- |
| TOTAL | 995 | 904 | 728 | 789 | 997 | 14553 | 3423 | 1636 | 800 | 682 | 1133 | 698 |
| MEAN | 32.1 | 30.1 | 23.5 | 25.5 | 35.6 | 469 | 114 | 52.8 | 26.7 | 22.0 | 36.5 | 23.3 |
| MAX | 178 | 44 | 26 | 31 | 40 | 2870 | 249 | 74 | 32 | 81 | 76 | 42 |
| MIN | 19 | 24 | 20 | 23 | 32 | 150 | 60 | 32 | 22 | 15 | 20 | 16 |
| AC-FT | 1970 | 1790 | 1440 | 1560 | 1980 | 28870 | 6790 | 3250 | 1590 | 1350 | 2250 | 1380 |

CAL YR 1977 TOTAL 12113 MEAN 33.2 MAX 374 MIN 14 AC-FT 24030
WTR YR 1978 TOTAL 27338 MEAN 74.9 MAX 2870 MIN 15 AC-FT 54220

## 09444200 BLUE RIVER NEAR CLIFTON, AZ

LOCATION.--Lat 33°17'27", long 109°11'44", in sec.6, T.2 S., R.31 E. (unsurveyed), Greenlee County, Hydrologic Unit 15040004, in Apache National Forest, on right bank 0.1 mi (0.2 km) downstream from county road crossing, 0.9 mi (1.4 km) upstream from Clear Creek, 8 mi (13 km) upstream from mouth, and 17 mi (27 km) northeast of Clifton.

DRAINAGE AREA.--506 $mi^2$ (1,311 $km^2$).

PERIOD OF RECORD.--November 1967 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 4,160 ft (1,268 m), from topographic map.

REMARKS.--Records good.

AVERAGE DISCHARGE.--10 years (water years 1969-78), 51.4 $ft^3/s$ (1.456 $m^3/s$), 37,240 acre-ft/yr (45.9 $hm^3/yr$); median of yearly mean discharges, 30 $ft^3/s$ (0.850 $m^3/s$) 21,700 acre-ft/yr (27 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 30,000 $ft^3/s$ (850 $m^3/s$) Oct. 20, 1972, gage height, 22.56 ft (6.876 m), from rating curve extended above 960 $ft^3/s$ (27 $m^3/s$) on basis of slope-area measurement of peak flow; minimum daily, 1.7 $ft^3/s$ (0.048 $m^3/s$) July 11, 12, 1974.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,660 $ft^3/s$ (104 $m^3/s$) Mar. 2, gage height, 10.61 ft (3.234 m), base discharge, 800 $ft^3/s$ (23 $m^3/s$); minimum daily, 2.9 $ft^3/s$ (0.082 $m^3/s$) July 31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5.9 | 6.1 | 7.3 | 6.4 | 105 | 1360 | 229 | 42 | 5.9 | 4.7 | 3.4 | 4.9 |
| 2 | 5.7 | 6.5 | 6.7 | 6.5 | 56 | 2330 | 226 | 42 | 5.3 | 4.6 | 13 | 58 |
| 3 | 5.4 | 6.4 | 6.6 | 6.5 | 41 | 1960 | 189 | 43 | 5.1 | 4.5 | 31 | 35 |
| 4 | 6.3 | 6.2 | 6.5 | 6.5 | 33 | 821 | 167 | 36 | 5.2 | 4.5 | 11 | 18 |
| 5 | 7.0 | 5.8 | 6.5 | 6.7 | 28 | 514 | 147 | 32 | 5.0 | 4.5 | 12 | 62 |
| 6 | 12 | 6.9 | 6.4 | 6.7 | 31 | 519 | 131 | 37 | 5.7 | 4.5 | 33 | 14 |
| 7 | 36 | 10 | 6.3 | 6.7 | 33 | 396 | 120 | 41 | 6.1 | 4.5 | 19 | 13 |
| 8 | 21 | 11 | 6.3 | 6.7 | 31 | 294 | 118 | 35 | 5.7 | 4.7 | 17 | 11 |
| 9 | 16 | 9.6 | 6.3 | 6.3 | 28 | 251 | 109 | 31 | 5.9 | 4.5 | 21 | 8.2 |
| 10 | 12 | 8.9 | 6.5 | 6.6 | 26 | 240 | 99 | 27 | 6.1 | 4.4 | 20 | 8.2 |
| 11 | 11 | 8.6 | 6.5 | 7.4 | 91 | 225 | 86 | 26 | 5.8 | 4.5 | 55 | 7.1 |
| 12 | 10 | 8.5 | 6.5 | 7.1 | 64 | 221 | 80 | 26 | 6.1 | 5.1 | 26 | 7.1 |
| 13 | 9.8 | 8.4 | 6.4 | 7.1 | 46 | 216 | 76 | 23 | 6.7 | 4.7 | 25 | 6.5 |
| 14 | 9.4 | 8.2 | 6.2 | 7.1 | 65 | 178 | 76 | 22 | 6.2 | 4.5 | 20 | 8.8 |
| 15 | 8.7 | 7.6 | 5.7 | 32 | 61 | 161 | 80 | 21 | 5.0 | 4.0 | 16 | 9.3 |
| 16 | 8.2 | 7.5 | 5.7 | 47 | 64 | 140 | 80 | 21 | 6.1 | 3.9 | 12 | 15 |
| 17 | 7.9 | 7.3 | 5.3 | 45 | 57 | 127 | 78 | 21 | 5.9 | 3.5 | 7.7 | 39 |
| 18 | 7.5 | 7.5 | 5.4 | 35 | 45 | 120 | 74 | 21 | 5.7 | 3.6 | 4.9 | 19 |
| 19 | 7.2 | 7.6 | 5.5 | 19 | 41 | 141 | 69 | 17 | 5.6 | 3.4 | 4.9 | 15 |
| 20 | 6.8 | 7.5 | 5.0 | 33 | 38 | 185 | 65 | 15 | 5.4 | 3.5 | 68 | 15 |
| 21 | 6.7 | 7.6 | 4.6 | 34 | 40 | 219 | 62 | 15 | 5.3 | 3.3 | 37 | 9.9 |
| 22 | 6.7 | 7.7 | 4.7 | 29 | 42 | 236 | 58 | 13 | 5.2 | 15 | 113 | 8.9 |
| 23 | 5.9 | 7.7 | 5.1 | 18 | 44 | 306 | 56 | 12 | 5.1 | 11 | 20 | 6.0 |
| 24 | 5.6 | 7.6 | 5.1 | 17 | 43 | 291 | 51 | 11 | 4.9 | 76 | 30 | 6.0 |
| 25 | 5.5 | 7.7 | 4.9 | 12 | 42 | 247 | 48 | 11 | 4.8 | 26 | 34 | 45 |
| 26 | 5.2 | 7.5 | 5.3 | 12 | 43 | 225 | 50 | 10 | 4.8 | 23 | 40 | 52 |
| 27 | 5.0 | 7.3 | 5.6 | 11 | 44 | 217 | 52 | 9.3 | 5.3 | 14 | 34 | 30 |
| 28 | 5.1 | 7.5 | 5.9 | 11 | 81 | 207 | 54 | 8.8 | 6.4 | 7.0 | 22 | 20 |
| 29 | 6.1 | 7.6 | 7.2 | 10 | --- | 196 | 48 | 8.1 | 5.5 | 4.1 | 14 | 20 |
| 30 | 7.7 | 7.6 | 8.5 | 15 | --- | 193 | 46 | 6.9 | 5.0 | 3.3 | 11 | 15 |
| 31 | 6.7 | --- | 6.9 | 188 | --- | 195 | --- | 6.3 | --- | 2.9 | 7.7 | --- |
| TOTAL | 280.0 | 231.9 | 187.4 | 662.3 | 1363 | 12931 | 2824 | 690.4 | 166.8 | 271.7 | 782.6 | 586.9 |
| MEAN | 9.03 | 7.73 | 6.05 | 21.4 | 48.7 | 417 | 94.1 | 22.3 | 5.56 | 8.76 | 25.2 | 19.6 |
| MAX | 36 | 11 | 8.5 | 188 | 105 | 2330 | 229 | 43 | 6.7 | 76 | 113 | 62 |
| MIN | 5.0 | 5.8 | 4.6 | 6.3 | 26 | 120 | 46 | 6.3 | 4.8 | 2.9 | 3.4 | 4.9 |
| AC-FT | 555 | 460 | 372 | 1310 | 2700 | 25650 | 5600 | 1370 | 331 | 539 | 1550 | 1160 |

CAL YR 1977 TOTAL 5392.8 MEAN 14.8 MAX 160 MIN 3.4 AC-FT 10700
WTR YR 1978 TOTAL 20978.0 MEAN 57.5 MAX 2330 MIN 2.9 AC-FT 41610

## 09444500 SAN FRANCISCO RIVER AT CLIFTON, AZ

LOCATION.--Lat 33°02'58", long 109°17'43", in SW¼SE¼ sec.30, T.4 S., R.30 E., Greenlee County, Hydrologic Unit 15040004, on downstream side of right pier at Railroad Boulevard Bridge (U.S. Highway 666), at Clifton, 9.9 mi (15.9 km) upstream from mouth.

DRAINAGE AREA.--2,766 $mi^2$ (7,164 $km^2$).

PERIOD OF RECORD.--October 1910 to March 1911, July 1911 to June 1912, September 1912, November 1912 to March 1913, May 1913 to July 1918, July 1927 to current year. Monthly discharge only for some periods, published in WSP 1313. Published as "San Francisco River at dam above Clifton" in 1911 and under both names in 1912.

REVISED RECORDS.--WSP 1049: 1911, 1913-15, 1917. WSP 1283: Drainage area. WSP 1313: 1927-30(M), 1932(M), 1934(M). WRD Ariz. 1972: 1917(M).

Gage.--Water-stage recorder. Datum of gage is 3,436.16 ft (1,047.342 m) National Geodetic Vertical Datum of 1929. See WSP 1713 or 1733 for history of changes prior to Apr. 7, 1959. Apr. 7, 1959, to Mar. 23, 1961, at site 1,140 ft (347 m) downstream at datum 5.37 ft (1.637 m) lower.

REMARKS.--Records good. Diversions for mining, municipal use, and for irrigation of about 2,700 acres (10.9 $km^2$) above station.

AVERAGE DISCHARGE.--54 years (water years 1914-15, 1917, 1928-78) 188 $ft^3/s$ (5.324 $m^3/s$), 136,200 acre-ft/yr (168 $hm^3/yr$); median of yearly mean discharges, 130 $ft^3/s$ (3.68 $m^3/s$), 94,200 acre-ft/yr (116 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 64,000 $ft^3/s$ (1,810 $m^3/s$) Oct. 20, 1972, gage height, 17.0 ft (5.18 m), from high-water mark, from rating curve extended above 6,400 $ft^3/s$ (181 $m^3/s$) on basis of slope-area measurement of peak flow; minimum daily, 6.1 $ft^3/s$ (0.173 $m^3/s$) June 21, 1971.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 9,500 $ft^3/s$ (269 $m^3/s$) Mar. 3, gage height, 8.00 ft (2.438 m), base discharge, 2,000 $ft^3/s$ (57 $m^3/s$); minimum daily, 15 $ft^3/s$ (0.425 $m^3/s$) July 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 36 | 45 | 52 | 53 | 213 | 1210 | 580 | 131 | 58 | 41 | 51 | 46 |
| 2 | 34 | 44 | 52 | 53 | 97 | 6820 | 574 | 129 | 55 | 36 | 51 | 138 |
| 3 | 34 | 44 | 52 | 53 | 66 | 7430 | 514 | 134 | 55 | 32 | 91 | 139 |
| 4 | 33 | 44 | 52 | 52 | 56 | 3010 | 455 | 121 | 51 | 30 | 89 | 82 |
| 5 | 33 | 42 | 52 | 51 | 51 | 1580 | 420 | 108 | 51 | 29 | 268 | 90 |
| 6 | 38 | 48 | 52 | 51 | 51 | 1480 | 390 | 105 | 46 | 28 | 124 | 62 |
| 7 | 55 | 51 | 50 | 51 | 55 | 1310 | 355 | 129 | 45 | 26 | 80 | 53 |
| 8 | 59 | 63 | 50 | 51 | 56 | 1050 | 345 | 124 | 44 | 25 | 66 | 47 |
| 9 | 66 | 62 | 46 | 51 | 56 | 806 | 340 | 117 | 44 | 24 | 68 | 45 |
| 10 | 144 | 58 | 47 | 52 | 53 | 701 | 309 | 99 | 44 | 28 | 93 | 40 |
| 11 | 166 | 56 | 51 | 55 | 78 | 673 | 271 | 89 | 44 | 28 | 69 | 34 |
| 12 | 83 | 55 | 51 | 55 | 161 | 598 | 235 | 95 | 45 | 28 | 108 | 37 |
| 13 | 68 | 55 | 51 | 53 | 103 | 624 | 220 | 97 | 44 | 25 | 69 | 39 |
| 14 | 58 | 55 | 52 | 53 | 119 | 526 | 220 | 97 | 44 | 25 | 62 | 35 |
| 15 | 53 | 53 | 50 | 58 | 185 | 460 | 227 | 114 | 42 | 28 | 53 | 33 |
| 16 | 48 | 53 | 50 | 160 | 173 | 440 | 227 | 129 | 41 | 28 | 46 | 36 |
| 17 | 47 | 52 | 50 | 89 | 161 | 400 | 224 | 117 | 40 | 24 | 40 | 42 |
| 18 | 45 | 52 | 50 | 138 | 124 | 385 | 216 | 99 | 38 | 19 | 36 | 50 |
| 19 | 45 | 52 | 50 | 89 | 103 | 405 | 196 | 93 | 39 | 20 | 64 | 47 |
| 20 | 44 | 52 | 50 | 89 | 93 | 455 | 173 | 83 | 33 | 20 | 73 | 44 |
| 21 | 42 | 51 | 50 | 110 | 87 | 508 | 167 | 78 | 28 | 15 | 80 | 40 |
| 22 | 41 | 51 | 50 | 108 | 93 | 574 | 170 | 80 | 27 | 20 | 183 | 38 |
| 23 | 39 | 51 | 50 | 89 | 108 | 638 | 161 | 81 | 27 | 78 | 139 | 38 |
| 24 | 40 | 51 | 50 | 81 | 119 | 673 | 144 | 78 | 27 | 104 | 137 | 38 |
| 25 | 35 | 51 | 51 | 76 | 124 | 673 | 136 | 76 | 28 | 106 | 103 | 40 |
| 26 | 32 | 51 | 52 | 71 | 121 | 617 | 129 | 69 | 28 | 63 | 91 | 181 |
| 27 | 32 | 51 | 52 | 68 | 126 | 592 | 134 | 69 | 27 | 68 | 97 | 76 |
| 28 | 37 | 51 | 53 | 65 | 142 | 580 | 149 | 66 | 31 | 63 | 73 | 56 |
| 29 | 40 | 52 | 56 | 62 | --- | 568 | 149 | 62 | 51 | 48 | 62 | 47 |
| 30 | 44 | 52 | 56 | 63 | --- | 556 | 142 | 60 | 51 | 45 | 65 | 35 |
| 31 | 44 | --- | 55 | 318 | --- | 544 | --- | 59 | --- | 44 | 52 | --- |
| TOTAL | 1615 | 1548 | 1585 | 2468 | 2974 | 36886 | 7972 | 2988 | 1228 | 1198 | 2683 | 1728 |
| MEAN | 52.1 | 51.6 | 51.1 | 79.6 | 106 | 1190 | 266 | 96.4 | 40.9 | 38.6 | 86.5 | 57.6 |
| MAX | 166 | 63 | 56 | 318 | 213 | 7430 | 580 | 134 | 58 | 106 | 268 | 181 |
| MIN | 32 | 42 | 46 | 51 | 51 | 385 | 129 | 59 | 27 | 15 | 36 | 33 |
| AC-FT | 3200 | 3070 | 3140 | 4900 | 5900 | 73160 | 15810 | 5930 | 2440 | 2380 | 5320 | 3430 |

CAL YR 1977 TOTAL 25405 MEAN 69.6 MAX 568 MIN 18 AC-FT 50390
WTR YR 1978 TOTAL 64873 MEAN 178 MAX 7430 MIN 15 AC-FT 128700

## 09444600 SAN FRANCISCO RIVER NEAR CLIFTON, AZ

LOCATION.--Lat 33°01'33", long 109°18'06", in NE¼NW¼SW¼ sec.6, T.5 S., R.30 E., Greenlee County, Hydrologic Unit 15040004, 0.9 mi (1.4 km) downstream from Clifton sewage treatment facility, 1.2 mi (1.9 km) south of Clifton, and 7.7 mi (12.4 km) upstream from mouth.

DRAINAGE AREA.--2,770 $mi^2$ (7,170 $km^2$), approximately.

PERIOD OF RECORD.--January 1976 to current year.

REMARKS.--Streamflow ungaged. Gaging station 09444500 San Francisco River at Clifton located 2.2 mi (3.5 km) upstream.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | TUR-BID-ITY (JTU) | OXYGEN, DIS-SOLVED (MG/L) | COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 18... | 1400 | 40 | 1430 | 8.4 | 22.0 | 45 | 7.8 | 100 | 250 | 73 | 75 | 14 |
| NOV | | | | | | | | | | | | |
| 16... | 1100 | 50 | 970 | 8.8 | 12.0 | 10 | 10.5 | 20 | 210 | 37 | 62 | 14 |
| DEC | | | | | | | | | | | | |
| 16... | 1220 | 52 | 1420 | 8.6 | 10.0 | 4 | 10.0 | 4 | 260 | 97 | 47 | 35 |
| JAN | | | | | | | | | | | | |
| 17... | 1200 | 87 | 800 | 9.4 | 10.0 | 110 | 11.8 | 360 | 180 | 42 | 52 | 13 |
| FEB | | | | | | | | | | | | |
| 07... | 1600 | 80 | 1100 | 8.4 | 16.0 | 45 | 8.2 | 39 | 240 | 71 | 71 | 14 |
| MAR | | | | | | | | | | | | |
| 24... | 1130 | 846 | 380 | 8.0 | 14.0 | -- | 8.1 | 73 | 120 | 21 | 34 | 8.3 |
| APR | | | | | | | | | | | | |
| 12... | 1400 | 258 | 680 | 7.6 | 21.0 | 15 | 7.9 | 5 | 160 | 30 | 48 | 10 |
| MAY | | | | | | | | | | | | |
| 17... | 1100 | 120 | 760 | 8.1 | 22.0 | 4 | 8.4 | 90 | 180 | 57 | 57 | 9.2 |
| JUN | | | | | | | | | | | | |
| 14... | 1500 | 47 | 1720 | 7.7 | 31.5 | 1 | 6.7 | -- | 290 | 140 | 92 | 15 |
| JUL | | | | | | | | | | | | |
| 19... | 1030 | 20 | 3090 | 8.2 | 28.0 | 2 | 8.6 | 38 | 440 | 280 | 150 | 17 |
| AUG | | | | | | | | | | | | |
| 10... | 1100 | 89 | 800 | 7.9 | 25.0 | 2600 | 6.8 | 9600 | 190 | 63 | 58 | 12 |
| SEP | | | | | | | | | | | | |
| 19... | 1030 | 57 | 1500 | 8.0 | 21.0 | 39 | 8.1 | 210 | 280 | 120 | 87 | 15 |

| DATE | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | BICAR-BONATE (MG/L AS HCO3) | CAR-BONATE (MG/L AS CO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER AC-FT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 18... | 170 | 4.7 | 10 | 210 | 0 | 23 | 290 | 1.0 | 42 | 741 | 729 | 1.01 |
| NOV | | | | | | | | | | | | |
| 16... | 110 | 3.3 | 6.8 | 210 | 2 | 24 | 180 | .9 | 39 | 541 | 542 | .74 |
| DEC | | | | | | | | | | | | |
| 16... | 180 | 4.8 | 11 | 200 | 0 | 28 | 320 | .9 | 40 | 790 | 761 | 1.07 |
| JAN | | | | | | | | | | | | |
| 17... | 87 | 2.8 | 5.2 | 170 | 1 | 29 | 140 | .5 | 16 | 434 | 428 | .59 |
| FEB | | | | | | | | | | | | |
| 07... | 130 | 3.7 | 8.5 | 200 | 0 | 29 | 240 | .9 | 37 | 625 | 630 | .85 |
| MAR | | | | | | | | | | | | |
| 24... | 33 | 1.3 | 2.8 | 120 | 0 | 25 | 43 | .4 | 30 | 229 | 237 | .31 |
| APR | | | | | | | | | | | | |
| 12... | 73 | 2.5 | .1 | 160 | 0 | 27 | 120 | .5 | 25 | 381 | 383 | .52 |
| MAY | | | | | | | | | | | | |
| 17... | 110 | 3.6 | 6.5 | 150 | 0 | 49 | 170 | .6 | 27 | 486 | 503 | .66 |
| JUN | | | | | | | | | | | | |
| 14... | 230 | 5.9 | 15 | 190 | 0 | 36 | 420 | .9 | 29 | 990 | 936 | 1.35 |
| JUL | | | | | | | | | | | | |
| 19... | 420 | 8.7 | 27 | 200 | 0 | 45 | 870 | 1.3 | 44 | 1830 | 1670 | 2.49 |
| AUG | | | | | | | | | | | | |
| 10... | 110 | 3.4 | 7.9 | 160 | 0 | 28 | 200 | .9 | 36 | 588 | 535 | .80 |
| SEP | | | | | | | | | | | | |
| 19... | 190 | 5.0 | 12 | 200 | 0 | 32 | 360 | .9 | 42 | 884 | 838 | 1.20 |

09444600 SAN FRANCISCO RIVER NEAR CLIFTON, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | NITROGEN, TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P) |
|---|---|---|---|---|---|---|
| OCT | | | | | | |
| 18... | .03 | -- | .38 | .41 | .17 | -- |
| NOV | | | | | | |
| 16... | .03 | -- | .30 | .33 | .09 | -- |
| DEC | | | | | | |
| 16... | .02 | .02 | .15 | .17 | .05 | .03 |
| JAN | | | | | | |
| 17... | .06 | .10 | .35 | .41 | .21 | .03 |
| FEB | | | | | | |
| 07... | .04 | .05 | .49 | .53 | .20 | .07 |
| MAR | | | | | | |
| 24... | .12 | .14 | .34 | .46 | .46 | .06 |
| APR | | | | | | |
| 12... | .05 | .20 | .23 | .28 | .13 | .01 |
| MAY | | | | | | |
| 17... | .02 | .01 | .32 | .34 | .06 | .01 |
| JUN | | | | | | |
| 14... | .02 | 1.0 | .78 | .80 | .07 | .04 |
| JUL | | | | | | |
| 19... | .02 | .05 | 1.9 | 1.9 | .07 | .05 |
| AUG | | | | | | |
| 10... | .47 | .43 | 9.0 | 9.5 | 7.9 | .28 |
| SEP | | | | | | |
| 19... | .04 | .04 | .25 | .29 | .13 | .08 |

| DATE | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOVERABLE (UG/L AS BA) | BORON, TOTAL RECOVERABLE (UG/L AS B) | BORON, DISSOLVED (UG/L AS B) | CADMIUM TOTAL RECOVERABLE (UG/L AS CD) | CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) | COPPER, TOTAL RECOVERABLE (UG/L AS CU) | IRON, TOTAL RECOVERABLE (UG/L AS FE) | IRON, DISSOLVED (UG/L AS FE) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 18... | 3 | 100 | 150 | 100 | 10 | 20 | 20 | 1800 | 40 |
| NOV | | | | | | | | | |
| 16... | 3 | 300 | 140 | 80 | 1 | 4 | 24 | 690 | 40 |
| DEC | | | | | | | | | |
| 16... | 3 | 100 | 150 | 100 | 1 | 20 | 11 | 310 | 20 |
| JAN | | | | | | | | | |
| 17... | 3 | 100 | 100 | 60 | 3 | 20 | 240 | 4400 | 20 |
| FEB | | | | | | | | | |
| 07... | 12 | 100 | 130 | 80 | 1 | 10 | 34 | 1300 | 20 |
| MAR | | | | | | | | | |
| 24... | 1 | 300 | 50 | 40 | 1 | 0 | 45 | 4100 | 40 |
| APR | | | | | | | | | |
| 12... | 6 | 300 | 110 | 50 | 1 | 0 | 10 | 460 | 20 |
| MAY | | | | | | | | | |
| 17... | 2 | 0 | 110 | 60 | 2 | 10 | 10 | 310 | 0 |
| JUN | | | | | | | | | |
| 14... | 3 | 200 | 210 | 120 | 1 | 0 | 13 | 120 | 0 |
| JUL | | | | | | | | | |
| 19... | 4 | 300 | 250 | 220 | 0 | 10 | 12 | 200 | 40 |
| AUG | | | | | | | | | |
| 10... | 9 | 700 | 160 | 90 | 4 | 100 | 530 | 68000 | 50 |
| SEP | | | | | | | | | |
| 19... | 4 | 100 | 180 | 140 | 1 | 10 | 22 | 2500 | 10 |

09444600 SAN FRANCISCO RIVER NEAR CLIFTON, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | LEAD, TOTAL RECOVERABLE (UG/L AS PB) | MANGANESE, DISSOLVED (UG/L AS MN) | MERCURY TOTAL RECOVERABLE (UG/L AS HG) | SELENIUM, TOTAL (UG/L AS SE) | SILVER, TOTAL RECOVERABLE (UG/L AS AG) | ZINC, TOTAL RECOVERABLE (UG/L AS ZN) | CARBON, ORGANIC TOTAL (MG/L AS C) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS (UG/L) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 18... | <100 | 40 | 3.8 | 0 | <10 | 50 | 2.2 | .00 | 1 |
| NOV | | | | | | | | | |
| 16... | 13 | 20 | .0 | 0 | 0 | 40 | 1.9 | .00 | 10 |
| DEC | | | | | | | | | |
| 16... | 4 | 40 | .1 | 0 | 0 | 20 | 1.1 | .00 | 1 |
| JAN | | | | | | | | | |
| 17... | 16 | 30 | .4 | 0 | 0 | 70 | 6.3 | .00 | 3 |
| FEB | | | | | | | | | |
| 07... | 9 | 20 | .0 | 1 | 0 | 40 | 3.5 | .00 | 2 |
| MAR | | | | | | | | | |
| 24... | 8 | 0 | .0 | 2 | 1 | 30 | 8.1 | .00 | 3 |
| APR | | | | | | | | | |
| 12... | 7 | 20 | .0 | 0 | 0 | 10 | 2.6 | .00 | 5 |
| MAY | | | | | | | | | |
| 17... | 15 | 10 | .0 | 0 | 1 | 40 | 2.2 | .00 | 0 |
| JUN | | | | | | | | | |
| 14... | 3 | 40 | .1 | 0 | 0 | 20 | 1.6 | .00 | 2 |
| JUL | | | | | | | | | |
| 19... | 5 | 120 | .0 | 0 | 0 | 20 | 1.6 | .00 | 0 |
| AUG | | | | | | | | | |
| 10... | 84 | 0 | .0 | 1 | 1 | 290 | 74 | .00 | 1 |
| SEP | | | | | | | | | |
| 19... | 4 | 40 | .0 | 0 | 0 | 30 | 4.2 | .00 | 1 |

PESTICIDE ANALYSES, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | PCB, TOTAL IN BOTTOM MATERIAL (UG/KG) | ALDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) | CHLORDANE, TOTAL IN BOTTOM MATERIAL (UG/KG) | DDD, TOTAL IN BOTTOM MATERIAL (UG/KG) | DDE, TOTAL IN BOTTOM MATERIAL (UG/KG) | DDT, TOTAL IN BOTTOM MATERIAL (UG/KG) | DIAZINON, TOTAL IN BOTTOM MATERIAL (UG/KG) | DIELDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) | ENDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) | ETHION, TOTAL IN BOTTOM MATERIAL (UG/KG) | HEPTACHLOR, TOTAL IN BOTTOM MATERIAL (UG/KG) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SEP 19... | 1030 | 0 | .0 | 0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 |

| DATE | HEPTACHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG) | LINDANE TOTAL IN BOTTOM MATERIAL (UG/KG) | MALATHION, TOTAL IN BOTTOM MATERIAL (UG/KG) | METHYL PARATHION, TOT. IN BOTTOM MATL. (UG/KG) | METHYL TRITHION, TOT. IN BOTTOM MATL. (UG/KG) | PARATHION, TOTAL IN BOTTOM MATERIAL (UG/KG) | TOXAPHENE, TOTAL IN BOTTOM MATERIAL (UG/KG) | TRITHION, TOTAL IN BOTTOM MATERIAL (UG/KG) | 2,4-D, TOTAL IN BOTTOM MATERIAL (UG/KG) | 2,4,5-T TOTAL IN BOTTOM MATERIAL (UG/KG) | SILVEX, TOTAL IN BOTTOM MATERIAL (UG/KG) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SEP 19... | .0 | .0 | .0 | .0 | .0 | .0 | 0 | .0 | 0 | 0 | .0 |

< Actual value is known to be less than value shown.

## 09445000 WILLOW CREEK DIVERSION FROM BLACK RIVER, NEAR MORENCI, AZ

LOCATION.--Lat 33°24'46", long 109°43'08", in SW¼ sec.23, T.1 N., R.25 E. (unsurveyed), Graham County, Hydrologic Unit 15040005, in San Carlos Indian Reservation, on left bank just downstream from end of diversion pipeline, 3.6 mi (5.8 km) northeast of Point of Pines, 5.0 mi (8.0 km) southeast of pumping plant on Black River, and 29 mi (47 km) northwest of Morenci.

PERIOD OF RECORD.--April 1945 to current year.

GAGE.--Water-stage recorder and steel-edged rectangular weir. Datum of gage is 5,957.16 ft (1,815.742 m) National Geodetic Vertical Datum of 1929. Prior to June 26, 1946, at end of pipeline at that time, 3.5 mi (5.6 km) upstream at datum about 50 ft (15 m) higher.

REMARKS.--Records excellent. The entire flow consists of Black River (head of Salt River) water which is pumped into headwater of Willow Creek (tributary of Eagle Creek) for industrial and municipal supply in vicinity of Morenci.

AVERAGE DISCHARGE.--33 years, 10.4 $ft^3/s$ (0.295 $m^3/s$), 7,530 acre-ft/yr (9.28 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 28 $ft^3/s$ (0.79 $m^3/s$) May 18, 19, 21-26, 1970; no flow at times in most years.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 17 | 17 | 12 | 5.4 | 5.4 | 3.3 | 22 | 26 | 22 | 7.1 | 17 | 16 |
| 2 | 17 | 17 | 12 | 5.4 | 5.2 | .00 | 23 | 26 | 23 | .02 | 17 | 18 |
| 3 | 17 | 17 | 12 | 5.4 | 5.2 | .00 | 24 | 26 | 24 | .00 | 12 | 18 |
| 4 | 17 | 17 | 12 | 5.6 | 5.4 | 14 | 26 | 26 | 26 | .00 | 17 | 18 |
| 5 | 17 | 17 | 12 | 5.6 | 5.6 | 24 | 26 | 26 | 26 | .00 | 25 | 18 |
| 6 | 17 | 17 | 12 | 5.6 | 5.6 | 25 | 26 | 26 | 25 | .00 | 19 | 18 |
| 7 | 17 | 15 | 12 | 5.6 | 5.6 | 25 | 26 | 26 | 20 | .00 | 17 | 18 |
| 8 | 17 | 12 | 12 | 5.6 | 5.6 | 20 | 26 | 26 | 18 | 6.2 | 19 | 18 |
| 9 | 17 | 12 | 7.7 | 5.6 | 5.6 | 18 | 26 | 26 | 18 | 21 | 17 | 15 |
| 10 | 17 | 12 | 5.4 | 5.6 | 5.6 | 18 | 26 | 26 | 18 | 22 | 17 | 13 |
| 11 | 18 | 12 | 5.4 | 5.6 | 2.6 | 18 | 26 | 26 | 22 | 21 | 19 | 13 |
| 12 | 18 | 12 | 5.4 | 5.6 | 5.6 | 18 | 26 | 25 | 25 | 22 | 18 | 13 |
| 13 | 18 | 12 | 5.4 | 5.6 | 5.6 | 18 | 26 | 23 | 25 | 20 | 18 | 16 |
| 14 | 18 | 12 | 5.4 | 5.6 | 5.6 | 18 | 26 | 23 | 25 | 10 | 18 | 18 |
| 15 | 17 | 12 | 5.4 | 4.4 | 5.6 | 18 | 26 | 23 | 25 | 25 | 18 | 18 |
| 16 | 17 | 12 | 5.4 | 1.0 | 5.6 | 18 | 26 | 23 | 25 | 26 | 21 | 18 |
| 17 | 17 | 12 | 5.4 | 5.4 | 5.6 | 18 | 26 | 23 | 25 | 25 | 21 | 18 |
| 18 | 17 | 12 | 5.4 | 5.4 | 5.6 | 18 | 26 | 23 | 25 | 26 | 23 | 18 |
| 19 | 17 | 12 | 5.4 | 5.4 | 5.6 | 18 | 26 | 23 | 25 | 23 | 18 | 18 |
| 20 | 17 | 12 | 5.4 | 5.4 | 5.6 | 18 | 26 | 23 | 25 | 25 | 12 | 18 |
| 21 | 17 | 12 | 5.4 | 5.4 | 5.6 | 18 | 26 | 23 | 26 | 26 | 22 | 21 |
| 22 | 17 | 12 | 5.4 | 5.4 | 5.6 | 16 | 26 | 23 | 26 | 26 | 20 | 22 |
| 23 | 17 | 12 | 5.4 | 5.4 | 5.6 | 17 | 26 | 22 | 26 | 27 | 12 | 22 |
| 24 | 17 | 12 | 5.4 | 5.4 | 5.6 | 17 | 26 | 22 | 26 | 20 | 20 | 22 |
| 25 | 17 | 12 | 5.4 | 5.4 | 5.6 | 18 | 26 | 22 | 26 | 17 | 14 | 22 |
| 26 | 17 | 12 | 5.4 | 5.4 | 5.6 | 18 | 26 | 22 | 26 | 17 | 14 | 22 |
| 27 | 17 | 12 | 5.4 | 5.4 | 5.6 | 18 | 26 | 22 | 24 | 17 | 14 | 22 |
| 28 | 17 | 10 | 5.4 | 5.4 | 5.6 | 18 | 26 | 22 | 23 | 17 | 14 | 19 |
| 29 | 17 | 12 | 5.4 | 5.4 | --- | 18 | 26 | 22 | 23 | 17 | 13 | 16 |
| 30 | 17 | 12 | 5.4 | 5.4 | --- | 20 | 26 | 22 | 23 | 17 | 13 | 18 |
| 31 | 17 | --- | 5.4 | 5.4 | --- | 22 | --- | 22 | --- | 17 | 13 | --- |
| TOTAL | 531 | 391 | 222.5 | 164.2 | 152.6 | 527.30 | 771 | 739 | 716 | 497.32 | 532 | 544 |
| MEAN | 17.1 | 13.0 | 7.18 | 5.30 | 5.45 | 17.0 | 25.7 | 23.8 | 23.9 | 16.0 | 17.2 | 18.1 |
| MAX | 18 | 17 | 12 | 5.6 | 5.6 | 25 | 26 | 26 | 26 | 27 | 25 | 22 |
| MIN | 17 | 10 | 5.4 | 1.0 | 2.6 | .00 | 22 | 22 | 18 | .00 | 12 | 13 |
| AC-FT | 1050 | 776 | 441 | 326 | 303 | 1050 | 1530 | 1470 | 1420 | 986 | 1060 | 1080 |

CAL YR 1977 TOTAL 4529.74 MEAN 12.4 MAX 22 MIN .02 AC-FT 8980
WTR YR 1978 TOTAL 5787.92 MEAN 15.9 MAX 27 MIN .00 AC-FT 11480

## 09447000 EAGLE CREEK ABOVE PUMPING PLANT, NEAR MORENCI, AZ

LOCATION.--Lat 33°04'16", long 109°27'10", in SE¼NE¼ sec.22, T.4 S., R.28 E., Greenlee County, Hydrologic Unit 15040005, on left bank 3 mi (5 km) upstream from Phelps Dodge Corp. pumping plant, 5 mi (8 km) west of Morenci, and 13 mi (21 km) upstream from mouth.

DRAINAGE AREA.--613 $mi^2$ (1,588 $km^2$).

PERIOD OF RECORD.--April 1944 to current year.

REVISED RECORDS.--WSP 1850-C: 1966.

GAGE.--Water-stage recorder, Parshall flume and weir. Datum of gage is 3,701 ft (1,128 m) unadjusted. Apr. 1944 to Jan. 30, 1978, at site 1,000 ft (305 m) downstream at datum 6.37 ft (1.942 m) lower. Since Nov. 15, 1952, supplementary water-stage recorder 900 ft (274 m) downstream on right bank at datum 6.37 ft (1.942 m) lower. Aug. 23, 1950, to Nov. 15, 1952, supplementary water-stage recorder at site 1,100 ft (335 m) downstream at different datum.

REMARKS.--Records good. Diversions above station for irrigation of about 500 acres (2.02 $km^2$), mostly above Willow Creek. Water from Black River was pumped into Eagle Creek basin, 52 mi (84 km) upstream from this station, for 12 months (see sta 09445000) and water was pumped from wells into Eagle Creek near Double Circle Ranch below Willow Creek for 9 months. The monthly quantities pumped are shown in table below. Diversion by pumping for industrial and municipal use in and near Morenci and Clifton are made from Eagle Creek, 3 mi (5 km) downstream from this station and from San Francisco River near Clifton. Monthly quantities diverted are shown in the table below; 90 percent of the pumpage was from Eagle Creek.

AVERAGE DISCHARGE (unadjusted).--34 years, 44.0 $ft^3/s$ (1.246 $m^3/s$), 31,880 acre-ft/yr (39.3 $hm^3/yr$); median of yearly mean discharges, 35 $ft^3/s$ (0.99 $m^3/s$), 25,400 acre-ft/yr (31 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,000 $ft^3/s$ (595 $m^3/s$) Dec. 30, 1965, gage height, 12.8 ft (3.90 m), at supplementary gage; minimum, 3.2 $ft^3/s$ (0.091 $m^3/s$) July 1, 1946.

EXTREMES FOR CURRENT YEAR.--Maximum (*) and peaks above base of 800 $ft^3/s$ (23 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (b) (ft) | Gage height (b) (m) |
|---|---|---|---|---|---|
| Mar. 1 | 2030 | (a) | (a) | *7.80 | 2.380 |
| Mar. 2 | 1430 | *3,900 | 110 | 7.40 | 2.256 |
| Aug. 19 | 1830 | 2,520 | 71.4 | 6.45 | 1.966 |

Minimum daily, 3.9 $ft^3/s$ (0.110 $m^3/s$) July 10.
(a) Result of backwater from diversion dam.
(b) At supplementary gage.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 26 | 33 | 30 | 22 | 126 | 1000 | 83 | 37 | 23 | 20 | 26 | 18 |
| 2 | 25 | 33 | 30 | 21 | 138 | 2400 | 85 | 38 | 23 | 18 | 25 | 33 |
| 3 | 25 | 33 | 30 | 21 | 82 | 1770 | 81 | 38 | 23 | 15 | 26 | 30 |
| 4 | 26 | 33 | 30 | 21 | 58 | 1000 | 74 | 37 | 22 | 10 | 26 | 28 |
| 5 | 28 | 33 | 30 | 21 | 46 | 750 | 71 | 35 | 24 | 7.9 | 28 | 27 |
| 6 | 32 | 33 | 30 | 21 | 42 | 766 | 67 | 38 | 25 | 6.2 | 28 | 26 |
| 7 | 39 | 34 | 30 | 21 | 41 | 609 | 63 | 40 | 24 | 5.1 | 30 | 26 |
| 8 | 37 | 34 | 28 | 21 | 40 | 328 | 61 | 37 | 24 | 4.4 | 30 | 26 |
| 9 | 32 | 32 | 28 | 21 | 41 | 225 | 61 | 35 | 22 | 4.1 | 28 | 26 |
| 10 | 33 | 31 | 28 | 21 | 42 | 172 | 61 | 34 | 18 | 3.9 | 27 | 25 |
| 11 | 32 | 31 | 26 | 23 | 59 | 170 | 57 | 33 | 17 | 4.1 | 27 | 24 |
| 12 | 32 | 31 | 24 | 22 | 112 | 166 | 54 | 33 | 16 | 4.9 | 29 | 22 |
| 13 | 32 | 30 | 23 | 22 | 92 | 172 | 51 | 33 | 18 | 13 | 48 | 22 |
| 14 | 32 | 30 | 22 | 21 | 88 | 169 | 49 | 31 | 22 | 14 | 35 | 22 |
| 15 | 31 | 30 | 22 | 26 | 99 | 161 | 47 | 30 | 22 | 15 | 30 | 24 |
| 16 | 31 | 30 | 22 | 49 | 95 | 149 | 46 | 30 | 21 | 10 | 26 | 36 |
| 17 | 31 | 30 | 22 | 35 | 87 | 138 | 46 | 30 | 21 | 11 | 25 | 44 |
| 18 | 31 | 30 | 21 | 32 | 68 | 123 | 46 | 30 | 21 | 15 | 26 | 37 |
| 19 | 30 | 30 | 21 | 30 | 58 | 115 | 46 | 29 | 21 | 18 | 196 | 30 |
| 20 | 31 | 30 | 21 | 32 | 51 | 115 | 44 | 29 | 21 | 22 | 119 | 28 |
| 21 | 30 | 30 | 21 | 30 | 47 | 120 | 44 | 28 | 20 | 20 | 50 | 28 |
| 22 | 30 | 30 | 20 | 29 | 48 | 124 | 42 | 28 | 20 | 39 | 45 | 28 |
| 23 | 31 | 30 | 21 | 28 | 48 | 131 | 41 | 28 | 20 | 56 | 38 | 30 |
| 24 | 31 | 30 | 22 | 28 | 52 | 132 | 40 | 26 | 20 | 44 | 34 | 31 |
| 25 | 30 | 30 | 20 | 27 | 56 | 114 | 39 | 26 | 19 | 47 | 40 | 32 |
| 26 | 30 | 30 | 21 | 26 | 59 | 104 | 39 | 26 | 19 | 65 | 36 | 63 |
| 27 | 30 | 30 | 22 | 26 | 62 | 98 | 38 | 26 | 20 | 61 | 26 | 53 |
| 28 | 32 | 30 | 22 | 26 | 65 | 95 | 38 | 26 | 23 | 45 | 22 | 40 |
| 29 | 32 | 30 | 24 | 25 | --- | 88 | 38 | 25 | 26 | 33 | 20 | 36 |
| 30 | 34 | 30 | 24 | 25 | --- | 84 | 38 | 25 | 24 | 32 | 20 | 32 |
| 31 | 33 | --- | 22 | 81 | --- | 82 | --- | 25 | --- | 28 | 19 | --- |
| TOTAL | 959 | 931 | 757 | 854 | 1904 | 11670 | 1590 | 966 | 639 | 691.6 | 1185 | 927 |
| MEAN | 30.9 | 31.0 | 24.4 | 27.5 | 68.0 | 376 | 53.0 | 31.2 | 21.3 | 22.3 | 38.2 | 30.9 |
| MAX | 39 | 34 | 30 | 81 | 138 | 2400 | 85 | 40 | 26 | 65 | 196 | 63 |
| MIN | 25 | 30 | 20 | 21 | 40 | 82 | 38 | 25 | 16 | 3.9 | 19 | 18 |
| AC-FT | 1900 | 1850 | 1500 | 1690 | 3780 | 23150 | 3150 | 1920 | 1270 | 1370 | 2350 | 1840 |
| (†) | 496 | 528 | 397 | 360 | 342 | 32 | 0 | 0 | 0 | 198 | 560 | 496 |
| (‡) | 1420 | 1630 | 1370 | 1530 | 1490 | 1420 | 1470 | 1380 | 1250 | 955 | 1370 | 1350 |

CAL YR 1977 TOTAL 12214.0 MEAN 33.5 MAX 279 MIN 19 AC-FT 24230 † 6,060 ‡ 16,530
WTR YR 1978 TOTAL 23073.6 MEAN 63.2 MAX 2400 MIN 3.9 AC-FT 45770 † 3,410 ‡ 16,640

† Pumpage, in acre-feet, into Eagle Creek, from Eagle Creek Wells.
‡ Pumpage, in acre-feet, to Clifton and Morenci, from San Francisco River and Eagle Creek.

## 09448500 GILA RIVER AT HEAD OF SAFFORD VALLEY, NEAR SOLOMON, AZ

LOCATION.--Lat 32°52'06", long 109°30'38", in SE¼NE¼ sec.31, T.6 S., R.28 E., Graham County, Hydrologic Unit 15040005, on left bank 0.6 mi (1.0 km) downstream from intake of Brown Canal, 8 mi (13 km) northeast of Solomon, and 17 mi (27 km) downstream from San Francisco River. Records include flow of Brown Canal, which is measured 2,000 ft (610 m) downstream from intake.

DRAINAGE AREA.--7,896 $mi^2$ (20,451 $km^2$).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1914 to current year. Monthly discharge only for some periods, published in WSP 1313. Prior to October 1932 and October 1940 to September 1949 published as "near Solomonsville" and October 1932 to October 1933 and May 1935 to September 1940 as "below Bonita Creek near Solomonsville."

REVISED RECORDS.--WSP 1059: 1914, 1916-17, 1923(M), 1924-25, 1927, 1929-31(M). WSP 1179: 1915, 1918-19(M). WSP 1313: 1934. WSP 1733: 1923.

GAGE.--Water-stage recorder. Datum of gage is 3,064.88 ft (934.175 m) National Geodetic Vertical Datum of 1929. See WSP 1733 for history of changes prior to Jan. 1, 1941. Supplementary water-stage recorder and Parshall flume on Brown Canal.

REMARKS.--Records good. Records show water reaching head of Safford Valley. Diversions above station for mining, municipal use, and for irrigation of about 17,500 acres (70.8 $km^2$), much of it by pumping from ground water.

COOPERATION.--Record for Brown Canal furnished by Gila Water Commissioner.

AVERAGE DISCHARGE.--64 years, 436 $ft^3/s$ (12.35 $m^3/s$), 315,900 acre-ft/yr (390 $hm^3/yr$); median of yearly mean discharges, 310 $ft^3/s$ (8.8 $m^3/s$), 225,000 acre-ft/yr (277 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 100,000 $ft^3/s$ (2,830 $m^3/s$) Jan. 19, 1916, gage height, 15.89 ft (4.843 m), present datum, from rating curve extended above 35,000 $ft^3/s$ (990 $m^3/s$) on basis of slope-area measurement at gage height 15.6 ft (4.75 m) and velocity-area study of peak flow; minimum, 11 $ft^3/s$ (0.31 $m^3/s$) June 25, 1956.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 21,600 $ft^3/s$ (612 $m^3/s$) Mar. 2, gage height, 10.20 ft (3.109 m), base discharge 4,000 $ft^3/s$ (113 $m^3/s$); minimum daily, 30 $ft^3/s$ (0.85 $m^3/s$) July 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 78 | 102 | 109 | 139 | 640 | 1820 | 1320 | 263 | 100 | 77 | 209 | 108 |
| 2 | 73 | 102 | 109 | 136 | 658 | 15700 | 1370 | 263 | 98 | 68 | 182 | 110 |
| 3 | 70 | 104 | 109 | 136 | 527 | 17400 | 1340 | 270 | 93 | 60 | 159 | 236 |
| 4 | 67 | 107 | 111 | 139 | 429 | 13300 | 1240 | 266 | 91 | 54 | 189 | 210 |
| 5 | 70 | 107 | 111 | 133 | 366 | 6760 | 1160 | 252 | 85 | 54 | 238 | 164 |
| 6 | 75 | 113 | 109 | 132 | 333 | 4820 | 1060 | 241 | 81 | 53 | 273 | 199 |
| 7 | 143 | 127 | 109 | 131 | 316 | 4350 | 959 | 252 | 77 | 51 | 200 | 142 |
| 8 | 162 | 144 | 107 | 132 | 299 | 3310 | 881 | 260 | 69 | 47 | 195 | 103 |
| 9 | 139 | 154 | 104 | 130 | 288 | 2470 | 846 | 242 | 68 | 45 | 184 | 89 |
| 10 | 154 | 149 | 104 | 134 | 273 | 2180 | 784 | 231 | 67 | 44 | 202 | 82 |
| 11 | 194 | 146 | 108 | 143 | 296 | 1950 | 720 | 211 | 66 | 44 | 224 | 72 |
| 12 | 159 | 141 | 113 | 135 | 420 | 1690 | 649 | 195 | 73 | 45 | 198 | 66 |
| 13 | 151 | 134 | 113 | 128 | 377 | 1590 | 577 | 192 | 72 | 44 | 204 | 66 |
| 14 | 146 | 129 | 115 | 124 | 364 | 1410 | 524 | 189 | 68 | 40 | 190 | 69 |
| 15 | 138 | 127 | 115 | 132 | 456 | 1300 | 489 | 194 | 68 | 40 | 171 | 68 |
| 16 | 122 | 115 | 112 | 194 | 496 | 1250 | 468 | 197 | 65 | 41 | 156 | 65 |
| 17 | 109 | 113 | 112 | 203 | 473 | 1230 | 441 | 203 | 67 | 39 | 136 | 68 |
| 18 | 100 | 113 | 112 | 210 | 403 | 1220 | 431 | 191 | 62 | 35 | 122 | 76 |
| 19 | 92 | 115 | 111 | 197 | 351 | 1190 | 402 | 179 | 59 | 32 | 178 | 81 |
| 20 | 92 | 118 | 111 | 197 | 315 | 1240 | 373 | 169 | 58 | 31 | 328 | 79 |
| 21 | 86 | 118 | 109 | 216 | 296 | 1320 | 338 | 157 | 56 | 30 | 219 | 76 |
| 22 | 82 | 118 | 109 | 210 | 292 | 1450 | 314 | 150 | 52 | 32 | 256 | 72 |
| 23 | 78 | 109 | 112 | 203 | 311 | 1490 | 304 | 152 | 48 | 84 | 210 | 68 |
| 24 | 75 | 109 | 112 | 183 | 334 | 1530 | 289 | 155 | 48 | 137 | 178 | 70 |
| 25 | 73 | 109 | 114 | 178 | 368 | 1560 | 265 | 154 | 47 | 150 | 190 | 72 |
| 26 | 70 | 111 | 116 | 172 | 385 | 1540 | 262 | 141 | 49 | 125 | 176 | 120 |
| 27 | 66 | 113 | 121 | 172 | 402 | 1510 | 259 | 132 | 51 | 359 | 162 | 156 |
| 28 | 68 | 115 | 126 | 164 | 416 | 1470 | 260 | 123 | 52 | 218 | 155 | 126 |
| 29 | 82 | 120 | 139 | 164 | --- | 1400 | 267 | 120 | 57 | 169 | 135 | 105 |
| 30 | 94 | 111 | 153 | 156 | --- | 1380 | 266 | 114 | 73 | 159 | 124 | 85 |
| 31 | 100 | --- | 145 | 302 | --- | 1310 | --- | 109 | --- | 144 | 121 | --- |
| TOTAL | 3208 | 3593 | 3560 | 5125 | 10884 | 102140 | 18858 | 5967 | 2020 | 2551 | 5864 | 3103 |
| MEAN | 103 | 120 | 115 | 165 | 389 | 3295 | 629 | 192 | 67.3 | 82.3 | 189 | 103 |
| MAX | 194 | 154 | 153 | 302 | 658 | 17400 | 1370 | 270 | 100 | 359 | 328 | 236 |
| MIN | 66 | 102 | 104 | 124 | 273 | 1190 | 259 | 109 | 47 | 30 | 121 | 65 |
| AC-FT | 6360 | 7130 | 7060 | 10170 | 21590 | 202600 | 37400 | 11840 | 4010 | 5060 | 11630 | 6150 |

CAL YR 1977 TOTAL 65985 MEAN 181 MAX 1890 MIN 26 AC-FT 130900
WTR YR 1978 TOTAL 166873 MEAN 457 MAX 17400 MIN 30 AC-FT 331000

09448500 GILA RIVER AT HEAD OF SAFFORD VALLEY, NEAR SOLOMON, AZ--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--January 1965 to September 1975, January 1976 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: January 1965 to September 1975.
WATER TEMPERATURES: January 1965 to September 1975.
SUSPENDED-SEDIMENT DISCHARGE: February 1965 to September 1975.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | TUR-BID-ITY (JTU) | OXYGEN, DIS-SOLVED (MG/L) | COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 19... | 1530 | 100 | 1170 | 8.6 | 22.5 | 50 | 7.6 | 28 |
| NOV | | | | | | | | |
| 17... | 1100 | 130 | 850 | 8.8 | 13.0 | 35 | 10.4 | 16 |
| DEC | | | | | | | | |
| 14... | 1430 | 107 | 1140 | 8.6 | 11.0 | 25 | 11.0 | 4 |
| JAN | | | | | | | | |
| 16... | 1500 | 194 | 820 | 8.6 | 11.5 | 150 | 9.6 | 80 |
| FEB | | | | | | | | |
| 06... | 1215 | 326 | 685 | 8.3 | 12.0 | 180 | 10.4 | 220 |
| MAR | | | | | | | | |
| 23... | 1030 | 1450 | 398 | 8.1 | 15.0 | -- | 10.3 | 120 |
| APR | | | | | | | | |
| 13... | 1300 | 719 | 620 | 8.4 | 19.0 | 55 | 8.0 | 4 |
| MAY | | | | | | | | |
| 16... | 1500 | 180 | 900 | 8.3 | 26.0 | 10 | 7.2 | 5 |
| JUN | | | | | | | | |
| 09... | 1500 | 52 | 1340 | 7.6 | 30.5 | 1 | 6.6 | 10 |
| JUL | | | | | | | | |
| 18... | 1700 | 35 | 1750 | 8.5 | 31.5 | 2 | 6.5 | -- |
| AUG | | | | | | | | |
| 09... | 1530 | 30 | 1100 | 8.3 | 30.5 | 450 | 6.4 | 700 |
| SEP | | | | | | | | |
| 20... | 1130 | .28 | 7500 | 7.8 | 25.0 | -- | 8.3 | K362 |
| 21... | 1100 | 70 | 1300 | 8.4 | 20.0 | 36 | -- | 140 |

| DATE | STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | BICAR-BONATE (MG/L AS HCO3) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 19... | -- | 230 | 62 | 69 | 15 | 140 | 4.0 | 8.4 | 210 |
| NOV | | | | | | | | | |
| 17... | -- | 210 | 24 | 60 | 14 | 120 | 3.6 | 6.1 | 210 |
| DEC | | | | | | | | | |
| 14... | -- | 230 | 61 | 67 | 14 | 140 | 4.1 | 7.9 | 200 |
| JAN | | | | | | | | | |
| 16... | -- | 190 | 28 | 56 | 13 | 100 | 3.1 | 5.7 | 200 |
| FEB | | | | | | | | | |
| 06... | -- | 170 | 28 | 49 | 11 | 70 | 2.4 | 4.7 | 170 |
| MAR | | | | | | | | | |
| 23... | -- | 120 | 5 | 34 | 8.5 | 37 | 1.5 | 3.4 | 140 |
| APR | | | | | | | | | |
| 13... | -- | 160 | 23 | 47 | 11 | 70 | 2.4 | 4.8 | 170 |
| MAY | | | | | | | | | |
| 16... | -- | 200 | 41 | 59 | 12 | 110 | 3.4 | 6.8 | 190 |
| JUN | | | | | | | | | |
| 09... | -- | 270 | 100 | 79 | 17 | 170 | 4.5 | 11 | 200 |
| JUL | | | | | | | | | |
| 18... | -- | 300 | 150 | 91 | 18 | 210 | 5.3 | 13 | 190 |
| AUG | | | | | | | | | |
| 09... | -- | 230 | 62 | 69 | 13 | 140 | 4.1 | 9.3 | 200 |
| SEP | | | | | | | | | |
| 20... | 29 | 1200 | 1000 | 310 | 97 | 1200 | 15 | 21 | -- |
| 21... | -- | 260 | 90 | 81 | 15 | 170 | 4.6 | 9.6 | 200 |

K Based on non-ideal colony count.

09448500 GILA RIVER AT HEAD OF SAFFORD VALLEY, NEAR SOLOMON, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | CARBONATE (MG/L AS CO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | SOLIDS, DISSOLVED (TONS PER AC-FT) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 19... | 0 | 54 | 220 | 1.3 | 42 | 657 | 653 | .89 |
| NOV | | | | | | | | |
| 17... | 7 | 55 | 150 | 1.4 | 39 | 536 | 556 | .73 |
| DEC | | | | | | | | |
| 14... | 0 | 60 | 210 | 1.5 | 38 | 633 | 638 | .86 |
| JAN | | | | | | | | |
| 16... | 1 | 56 | 130 | .9 | 19 | 482 | 482 | .66 |
| FEB | | | | | | | | |
| 06... | 0 | 43 | 99 | .9 | 15 | 391 | 378 | .53 |
| MAR | | | | | | | | |
| 23... | 0 | 36 | 36 | .9 | 31 | 248 | 257 | .34 |
| APR | | | | | | | | |
| 13... | 0 | 47 | 91 | 1.1 | 31 | 375 | 388 | .51 |
| MAY | | | | | | | | |
| 16... | 0 | 64 | 170 | 1.2 | 33 | 554 | 550 | .75 |
| JUN | | | | | | | | |
| 09... | 0 | 74 | 300 | 1.2 | 41 | 794 | 792 | 1.08 |
| JUL | | | | | | | | |
| 18... | 0 | 81 | 380 | 1.4 | 43 | 944 | 931 | 1.28 |
| AUG | | | | | | | | |
| 09... | 0 | 66 | 200 | 1.3 | 39 | 647 | 639 | .88 |
| SEP | | | | | | | | |
| 20... | -- | 680 | 2100 | 1.6 | 29 | 4620 | 4520 | 6.28 |
| 21... | 6 | 68 | 280 | 1.3 | 42 | 767 | 772 | 1.04 |

| DATE | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) | NITROGEN, AMMONIA TOTAL (MG/L AS N) | NITROGEN, ORGANIC TOTAL (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | NITROGEN, NH4 + ORG. SUSP. TOTAL (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N) | NITROGEN, NH4 + ORG. TOT IN BOT MAT (MG/KG AS N) | NITROGEN, TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | PHOSPHORUS, DISSOLVED (MG/L AS P) | PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 19... | .12 | -- | -- | -- | .48 | -- | -- | -- | .60 | .15 | -- | -- |
| NOV | | | | | | | | | | | | |
| 17... | .16 | -- | -- | -- | .35 | -- | -- | -- | .51 | .11 | -- | -- |
| DEC | | | | | | | | | | | | |
| 14... | .08 | .10 | -- | -- | .49 | -- | -- | -- | .57 | .09 | -- | .04 |
| JAN | | | | | | | | | | | | |
| 16... | .23 | .33 | -- | -- | .44 | -- | -- | -- | .67 | .45 | -- | .02 |
| FEB | | | | | | | | | | | | |
| 06... | .48 | .40 | -- | -- | .57 | -- | -- | -- | 1.1 | .24 | -- | .03 |
| MAR | | | | | | | | | | | | |
| 23... | .26 | .27 | -- | -- | .58 | -- | -- | -- | .84 | .52 | -- | .06 |
| APR | | | | | | | | | | | | |
| 13... | .22 | .32 | -- | -- | .39 | -- | -- | -- | .61 | .26 | -- | .07 |
| MAY | | | | | | | | | | | | |
| 16... | .14 | .14 | -- | -- | .54 | -- | -- | -- | .68 | .08 | -- | .03 |
| JUN | | | | | | | | | | | | |
| 09... | .04 | .06 | -- | -- | .35 | -- | -- | 84 | .39 | .07 | -- | .00 |
| JUL | | | | | | | | | | | | |
| 18... | .02 | .03 | -- | -- | .39 | -- | -- | -- | .41 | .05 | -- | .02 |
| AUG | | | | | | | | | | | | |
| 09... | .45 | .47 | -- | -- | 1.7 | -- | -- | -- | 2.2 | .98 | -- | .14 |
| SEP | | | | | | | | | | | | |
| 20... | .01 | -- | .01 | .90 | .91 | .32 | .59 | -- | .92 | .10 | .00 | -- |
| 21... | .02 | .03 | -- | -- | .32 | -- | -- | -- | .34 | .09 | -- | .08 |

09448500 GILA RIVER AT HEAD OF SAFFORD VALLEY, NEAR SOLOMON, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | ARSENIC TOTAL (UG/L AS AS) | ARSENIC TOTAL IN BOTTOM MATERIAL (UG/G AS AS) | BARIUM, TOTAL RECOVERABLE (UG/L AS BA) | BARIUM, RECOV. FM BOTTOM MATERIAL (UG/G AS BA) | BORON, TOTAL RECOVERABLE (UG/L AS B) | BORON, DISSOLVED (UG/L AS B) | CADMIUM TOTAL RECOVERABLE (UG/L AS CD) | CADMIUM RECOV. FM BOTTOM MATERIAL (UG/G AS CD) | CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 19... | 4 | -- | 100 | -- | 220 | 120 | <10 | -- | 15 |
| NOV | | | | | | | | | |
| 17... | 4 | -- | 500 | -- | 130 | 110 | 1 | -- | 8 |
| DEC | | | | | | | | | |
| 14... | 4 | -- | 100 | -- | 170 | 120 | 0 | -- | 10 |
| JAN | | | | | | | | | |
| 16... | 3 | -- | 200 | -- | 130 | 100 | 2 | -- | 20 |
| FEB | | | | | | | | | |
| 06... | 3 | -- | 100 | -- | 130 | 100 | 2 | -- | 0 |
| MAR | | | | | | | | | |
| 23... | 2 | -- | 400 | -- | 80 | 50 | 1 | -- | 10 |
| APR | | | | | | | | | |
| 13... | 5 | -- | 100 | -- | 140 | 70 | 2 | -- | 10 |
| MAY | | | | | | | | | |
| 16... | 3 | -- | 0 | -- | 140 | 110 | 1 | -- | 5 |
| JUN | | | | | | | | | |
| 09... | 4 | 1 | 50 | 50 | 230 | 150 | 1 | 0 | 5 |
| JUL | | | | | | | | | |
| 18... | 4 | -- | 200 | -- | 210 | 170 | 0 | -- | 0 |
| AUG | | | | | | | | | |
| 09... | 5 | -- | 300 | -- | 180 | 120 | 4 | -- | 30 |
| SEP | | | | | | | | | |
| 20... | 2 | -- | 200 | -- | 1000 | -- | 1 | -- | 0 |
| 21... | 5 | -- | 0 | -- | 200 | 150 | 1 | -- | 0 |

| DATE | CHROMIUM, RECOV. FM BOTTOM MATERIAL (UG/G) | COPPER, TOTAL RECOVERABLE (UG/L AS CU) | COPPER, RECOV. FM BOTTOM MATERIAL (UG/G AS CU) | IRON, TOTAL RECOVERABLE (UG/L AS FE) | IRON, DISSOLVED (UG/L AS FE) | LEAD, TOTAL RECOVERABLE (UG/L AS PB) | LEAD, RECOV. FM BOTTOM MATERIAL (UG/G AS PB) | MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) | MANGANESE, DISSOLVED (UG/L AS MN) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 19... | -- | 20 | -- | 3000 | 60 | <100 | -- | 130 | 4 |
| NOV | | | | | | | | | |
| 17... | -- | 20 | -- | 1800 | 40 | 15 | -- | 100 | 4 |
| DEC | | | | | | | | | |
| 14... | -- | 21 | -- | 1100 | 20 | 5 | -- | 60 | 10 |
| JAN | | | | | | | | | |
| 16... | -- | 88 | -- | 2600 | 10 | 16 | -- | 330 | 0 |
| FEB | | | | | | | | | |
| 06... | -- | 5 | -- | 9000 | 60 | 30 | -- | 450 | 20 |
| MAR | | | | | | | | | |
| 23... | -- | 120 | -- | 7500 | 40 | 15 | -- | 370 | 0 |
| APR | | | | | | | | | |
| 13... | -- | 33 | -- | 2800 | 0 | 11 | -- | 120 | 0 |
| MAY | | | | | | | | | |
| 16... | -- | 41 | -- | 930 | 0 | 6 | -- | 50 | 0 |
| JUN | | | | | | | | | |
| 09... | 1 | 16 | 100 | 170 | 30 | 15 | 0 | 30 | 0 |
| JUL | | | | | | | | | |
| 18... | -- | 37 | -- | 1000 | 20 | 8 | -- | 50 | 0 |
| AUG | | | | | | | | | |
| 09... | -- | 11 | -- | 20000 | 50 | 39 | -- | 820 | 0 |
| SEP | | | | | | | | | |
| 20... | -- | 9 | -- | 420 | -- | 3 | -- | 400 | -- |
| 21... | -- | 24 | -- | 2200 | 20 | 5 | -- | 100 | 20 |

< Actual value is known to be less than value shown.

09448500 GILA RIVER AT HEAD OF SAFFORD VALLEY, NEAR SOLOMON, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | MERCURY TOTAL RECOVERABLE (UG/L AS HG) | MERCURY RECOV. FM BOTTOM MATERIAL (UG/L AS HG) | SELENIUM, TOTAL (UG/L AS SE) | SELENIUM, TOTAL IN BOTTOM MATERIAL (UG/G) | SILVER, TOTAL RECOVERABLE (UG/L AS AG) | SILVER, RECOV. FM BOTTOM MATERIAL (UG/G AS AG) | ZINC, TOTAL RECOVERABLE (UG/L AS ZN) | ZINC, RECOV. FM BOTTOM MATERIAL (UG/G AS ZN) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 19... | .0 | -- | 0 | -- | <10 | -- | 50 | -- |
| NOV | | | | | | | | |
| 17... | .0 | -- | 0 | -- | 0 | -- | 30 | -- |
| DEC | | | | | | | | |
| 14... | .0 | -- | 0 | -- | 0 | -- | 40 | -- |
| JAN | | | | | | | | |
| 16... | .0 | -- | 0 | -- | 0 | -- | 60 | -- |
| FEB | | | | | | | | |
| 06... | .0 | -- | 4 | -- | 0 | -- | 50 | -- |
| MAR | | | | | | | | |
| 23... | .0 | -- | 3 | -- | 1 | -- | 70 | -- |
| APR | | | | | | | | |
| 13... | .0 | -- | 0 | -- | 0 | -- | 30 | -- |
| MAY | | | | | | | | |
| 16... | .1 | -- | 0 | -- | 0 | -- | 60 | -- |
| JUN | | | | | | | | |
| 09... | .0 | .0 | 0 | 0 | 0 | 1 | 20 | 38 |
| JUL | | | | | | | | |
| 18... | .0 | -- | 0 | -- | 0 | -- | 20 | -- |
| AUG | | | | | | | | |
| 09... | .5 | -- | 0 | -- | 0 | -- | 100 | -- |
| SEP | | | | | | | | |
| 20... | .0 | -- | 0 | -- | 0 | -- | 40 | -- |
| 21... | .0 | -- | 0 | -- | 0 | -- | 40 | -- |

| DATE | CARBON, ORGANIC TOTAL (MG/L AS C) | CYANIDE TOTAL (MG/L AS CN) | CYANIDE TOTAL IN BOTTOM MATERIAL (UG/G AS CN) | PHENOLS (UG/L) | PHYTOPLANKTON, TOTAL (CELLS PER ML) | PERIPHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M | PERIPHYTON BIOMASS ASH WEIGHT G/SQ M | SEDIMENT, SUSPENDED (MG/L) | SEDIMENT DISCHARGE, SUSPENDED (T/DAY) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 19... | 2.4 | .00 | -- | 5 | -- | -- | -- | -- | -- |
| NOV | | | | | | | | | |
| 17... | 2.1 | .00 | -- | 3 | -- | -- | -- | -- | -- |
| DEC | | | | | | | | | |
| 14... | 1.7 | .00 | -- | 4 | -- | -- | -- | -- | -- |
| JAN | | | | | | | | | |
| 16... | 6.3 | .00 | -- | 3 | -- | -- | -- | -- | -- |
| FEB | | | | | | | | | |
| 06... | 10 | .00 | -- | 3 | -- | -- | -- | 670 | 590 |
| MAR | | | | | | | | | |
| 23... | 8.3 | .00 | -- | 0 | -- | -- | -- | -- | -- |
| APR | | | | | | | | | |
| 13... | 3.8 | .00 | -- | 4 | -- | -- | -- | -- | -- |
| MAY | | | | | | | | | |
| 16... | 1.9 | .00 | -- | 0 | -- | -- | -- | -- | -- |
| JUN | | | | | | | | | |
| 09... | 1.4 | .00 | 0 | 0 | 690 | 8.43 | 5.75 | -- | -- |
| JUL | | | | | | | | | |
| 18... | 1.4 | .00 | -- | 1 | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | |
| 09... | 13 | .00 | -- | 0 | -- | -- | -- | -- | -- |
| SEP | | | | | | | | | |
| 20... | -- | .00 | -- | 0 | -- | -- | -- | -- | -- |
| 21... | 2.3 | .00 | -- | 0 | -- | -- | -- | -- | -- |

< Actual value is known to be less than value shown.

09448500 GILA RIVER AT HEAD OF SAFFORD VALLEY, NEAR SOLOMON, AZ--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

PHYTOPLANKTON

| | |
|---|---|
| DATE | JUN 9,78 |
| TIME | 1500 |
| TOTAL CELLS/ML | 690 |
| DIVERSITY: DIVISION | 0.4 |
| .CLASS | 0.4 |
| ..ORDER | 0.4 |
| ...FAMILY | 1.3 |
| ....GENUS | 1.3 |

| ORGANISM | CELLS /ML | PER-CENT |
|---|---|---|
| CHLOROPHYTA (GREEN ALGAE) | | |
| .CHLOROPHYCEAE | | |
| ..VOLVOCALES | | |
| ...CHLAMYDOMONADACEAE | | |
| ....CHLAMYDOMONAS | 57 | 8 |
| CHRYSOPHYTA | | |
| .BACILLARIOPHYCEAE | | |
| ..PENNALES | | |
| ...ACHNANTHACEAE | | |
| ....COCCONEIS | 14 | 2 |
| ...CYMBELLACEAE | | |
| ....CYMBELLA | 29 | 4 |
| ...NAVICULACEAE | | |
| ....NAVICULA | 72 | 10 |
| ...NITZSCHIACEAE | | |
| ....NITZSCHIA | 520# | 75 |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

## 09449000 DIVERSIONS FROM GILA RIVER IN SAFFORD VALLEY, AZ

LOCATION.--Safford Valley lies along Gila River in Graham County, extending from vicinity of Bonita Creek on the east to San Carlos Indian Reservation on the west. Eleven canals and one pump, listed in the following table in downstream order, divert water from Gila River for irrigation in the valley. Intake of Consolidated Brown Canal, at upper end of the valley, is 0.6 mi (1.0 km) upstream from station on Gila River near Solomon (09448500). Intake of Colvin-Jones Canal, at the lower end, is 25.8 mi (41.5 km) upstream from station at Calva (09466500). Record of canals obtained below wasteways used for regulation.

PERIOD OF RECORD.--January 1936 to current year (records of combined monthly diversions and annual diversions by each canal); records of monthly diversion 1914-15 and records of monthly and daily diversion 1920-31 for all canals except Colvin-Jones; records for Brown Canal also for water year 1931-32. Tidwell Canal was published as Michelana Canal in records for 1914-15 and 1920-31. Brown Canal and Tidwell Canal combined as Consolidated Brown Canal after Mar. 1, 1976. Records of daily discharge since 1936 published in reports of Gila Water Commissioner.

GAGES.--Water-stage recorders and Parshall flumes.

REMARKS.--Record shows total diversions unadjusted for return flow. Decreed area for irrigation in Safford Valley is 32,512 acres (132 $km^2$). Water was issued for 32,306 acres (131 $km^2$) during calendar year 1977. Water obtained by pumping from ground water for irrigation in the valley is not included.

COOPERATION.--Records furnished by Gila Water Commissioner.

ANNUAL DIVERSIONS, IN ACRE-FEET, TO EACH CANAL DURING CALENDAR YEAR 1977 AND WATER YEAR 1978

| Canal | | Calendar year 1977 | Water year 1978 |
|---|---|---|---|
| 09449500. | Consolidated Brown | 1,900 | 3,960 |
| 09452000. | Fourness | 189 | 229 |
| 09452500. | San Jose | 4,730 | 12,410 |
| 09453000. | Montezuma | 4,430 | 14,830 |
| 09453500. | Union | 8,260 | 20,100 |
| 09458000. | Graham | 3,260 | 7,410 |
| 09459500. | Smithville | 2,470 | 6,270 |
| 09461500. | Dodge-Nevada | 2,090 | 4,570 |
| 09462500. | Curtis | 1,680 | 4,770 |
| 09463500. | Ft. Thomas | 2,310 | 6,670 |
| 09464000. | Colvin-Jones | 0 | 0 |
| 09464500. | T. D. Burton | 0 | 0 |
| | Total | 31,320 | 81,220 |

COMBINED MONTHLY DISCHARGE OF CANALS DIVERTING FROM GILA RIVER IN SAFFORD VALLEY, AZ, DURING WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| Month | Discharge, in cubic feet per second | | | Diversions in acre-feet |
|---|---|---|---|---|
| | Maximum | Minimum | Mean | |
| October | 69.9 | 14.8 | 38.3 | 2,350 |
| November | 42.0 | 6.7 | 25.1 | 1,490 |
| December | 125 | 69.5 | 93.9 | 5,770 |
| CAL YR 1977 | 166 | 0 | 43.3 | 31,320 |
| January | 58.5 | 0 | 31.0 | 1,900 |
| February | 132 | 13.5 | 40.9 | 2,270 |
| March | 387 | 57.0 | 257 | 15,780 |
| April | 387 | 254. | 346 | 20,590 |
| May | 269 | 88.6 | 178 | 10,940 |
| June | 74.3 | 29.5 | 46.8 | 2,780 |
| July | 224 | 22.7 | 64.9 | 3,990 |
| August | 231 | 59.7 | 132 | 8,120 |
| September | 176 | 51.1 | 87.9 | 5,230 |
| WTR YR 1978 | 387 | 0 | 112 | 81,220 |

## 09457000 SAN SIMON RIVER NEAR SOLOMON, AZ

LOCATION.--Lat 32°48'06", long 109°38'19", in NW¼NE¼ sec.25, T.7 S., R.26 E., Graham County, Hydrologic Unit 15040006, 1.0 mi (1.6 km) southwest of Solomon and 2.2 mi (3.5 km) upstream from mouth.

DRAINAGE AREA.--2,192 $mi^2$ (5,677 $km^2$).

PERIOD OF RECORD.--June 1931 to September 1932, May 1935 to current year. Published as "San Simon Creek near Solomonsville" prior to October 1949 and as "San Simon Creek near Solomon" October 1949 to September 1961.

GAGE.--Water-stage recorder. Datum of gage is 2,960.15 ft (902.254 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records poor. Records do not include waste water passing station from San Jose Canal, which diverts from Gila River. Irrigation of about 13,800 acres (55.8 $km^2$) above station, mostly by pumping from ground water. Floodflows are partly regulated by six flood-control detention structures on main stream and tributaries; combined maximum capacity in excess of 10,500 acre-ft (12.9 $hm^3$).

AVERAGE DISCHARGE.--44 years, 12.2 $ft^3/s$ (0.346 $m^3/s$), 8,840 acre-ft/yr (10.9 $hm^3/yr$); median of yearly mean discharges, 8.9 $ft^3/s$ (0.25 $m^3/s$) 6,400 acre-ft/yr (7.9 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 27,500 $ft^3/s$ (779 $m^3/s$) Aug. 9, 1931, gage height, 19.0 ft (5.79 m), by slope-area measurement of peak flow; no flow for most of time.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,630 $ft^3/s$ (46.2 $m^3/s$) July 22, gage height, 9.68 ft (2.950 m), no peak above base of 2,500 $ft^3/s$ (71 $m^3/s$); no flow for most of year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 2 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 55 |
| 3 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 4 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 3.1 | .00 |
| 5 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 6 | .00 | 14 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 7 | 43 | 4.1 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 9 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 10 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 11 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 12 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 13 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 14 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 15 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 16 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 17 | .00 | .00 | .00 | 50 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 18 | .00 | .00 | .00 | 151 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 19 | .00 | .00 | .00 | 5.8 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 20 | .00 | .00 | .00 | 5.0 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 21 | .00 | .00 | .00 | 18 | .00 | .00 | .00 | .00 | .00 | .00 | 78 | .00 |
| 22 | .00 | .00 | .00 | 4.6 | .00 | .00 | .00 | .00 | .00 | 338 | .00 | .00 |
| 23 | .00 | .00 | .00 | 1.0 | .00 | .00 | .00 | .00 | .00 | 47 | .00 | .00 |
| 24 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 25 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 26 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 291 | .00 | .00 |
| 27 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 5.0 | .00 | .00 |
| 28 | .00 | .00 | 38 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 29 | .00 | .00 | 20 | .00 | --- | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 30 | .00 | .00 | .00 | .00 | --- | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 31 | .00 | --- | .00 | .00 | --- | .00 | --- | .00 | --- | .00 | .00 | --- |
| TOTAL | 43.00 | 18.10 | 58.00 | 235.40 | .00 | .00 | .00 | .00 | .00 | 681.00 | 81.10 | 55.00 |
| MEAN | 1.39 | .60 | 1.87 | 7.59 | .000 | .000 | .000 | .000 | .000 | 22.0 | 2.62 | 1.83 |
| MAX | 43 | 14 | 38 | 151 | .00 | .00 | .00 | .00 | .00 | 338 | 78 | 55 |
| MIN | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| AC-FT | 85 | 36 | 115 | 467 | .00 | .00 | .00 | .00 | .00 | 1350 | 161 | 109 |

CAL YR 1977 TOTAL 2856.30 MEAN 7.83 MAX 378 MIN .00 AC-FT 5670
WTR YR 1978 TOTAL 1171.60 MEAN 3.21 MAX 338 MIN .00 AC-FT 2320

## 09458050 MARIJILDA WASH NEAR SAFFORD, AZ

LOCATION.--Lat 32°41'43", long 109°47'28", in NE¼ sec.33, T.8 S., R.25 E. (unsurveyed), Graham County, Hydrologic Unit 15040005, on right bank, in Coronado National Forest, 10 mi (16 km) southwest of Safford.

DRAINAGE AREA.--10.9 $mi^2$ (28.2 $km^2$).

PERIOD OF RECORD.--May 1971 to September 1978 (discontinued).

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 4,500 ft (1,370 m), from topographic map.

REMARKS.--Records good. No regulation or diversion above station. Diversion to Lebanon ditch downstream.

AVERAGE DISCHARGE.--7 years, 4.40 $ft^3/s$ (0.125 $m^3/s$), 3,190 acre-ft/yr (3.93 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 883 $ft^3/s$ (25.0 $m^3/s$) Sept. 13, 1977, gage height, 5.10 ft (1.554 m), from rating curve extended above 668 $ft^3/s$ (18.9 $m^3/s$); no flow at times in most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Dec. 18, 1978 (1979 water year, after station was discontinued), discharge 5,770 $ft^3/s$ (163.4 $m^3/s$), from slope-area measurement of peak flow; gage height, 6.8 ft (2.07 m), from flood marks at gage.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*) and peak discharges above base of 20 $ft^3/s$ (0.57 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) | Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Jan. 15 | 2230 | 28 | 0.79 | 2.26 | 0.689 | Mar. 2 | 0800 | *317 | 8.98 | 3.80 | 1.158 |
| Jan. 31 | 0200 | 62 | 1.76 | 2.68 | 0.817 | Apr. 1 | 0930 | 40 | 1.13 | 2.48 | 0.756 |

Minimum daily, 0.07 $ft^3/s$ (0.002 $m^3/s$) Aug. 11, 14-18, Sept. 20, 22, 29, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .20 | .45 | .23 | .54 | 14 | 207 | 38 | 19 | 9.0 | .80 | .33 | .08 |
| 2 | .17 | .37 | .23 | .49 | 8.7 | 264 | 30 | 16 | 8.4 | .69 | .32 | .08 |
| 3 | .17 | .37 | .20 | .45 | 5.9 | 125 | 25 | 13 | 8.1 | .42 | .27 | .15 |
| 4 | .17 | .37 | .20 | .41 | 4.8 | 50 | 24 | 12 | 7.6 | .53 | .25 | 1.4 |
| 5 | .14 | .37 | .20 | .37 | 3.8 | 38 | 21 | 13 | 7.1 | .45 | .26 | .95 |
| 6 | .26 | .45 | .20 | .37 | 4.8 | 31 | 20 | 19 | 6.7 | .43 | .22 | .54 |
| 7 | 2.6 | .45 | .20 | .33 | 5.7 | 25 | 20 | 17 | 6.2 | .40 | .13 | .36 |
| 8 | 1.6 | .45 | .20 | .29 | 5.3 | 20 | 20 | 14 | 5.5 | .37 | .10 | .28 |
| 9 | 1.1 | .45 | .20 | .26 | 4.6 | 18 | 17 | 13 | 5.3 | .39 | .09 | .26 |
| 10 | .92 | .41 | .17 | .26 | 4.4 | 17 | 14 | 14 | 4.8 | .42 | .08 | .21 |
| 11 | .80 | .37 | .17 | .45 | 13 | 15 | 12 | 18 | 4.4 | .50 | .07 | .14 |
| 12 | .69 | .37 | .17 | .41 | 9.3 | 14 | 12 | 20 | 4.2 | .47 | .08 | .10 |
| 13 | .64 | .33 | .17 | .37 | 7.1 | 14 | 14 | 22 | 3.8 | .41 | .08 | .09 |
| 14 | .59 | .33 | .17 | .37 | 6.9 | 13 | 17 | 27 | 3.5 | .34 | .07 | .08 |
| 15 | .54 | .29 | .17 | 8.2 | 6.4 | 11 | 19 | 29 | 3.1 | .30 | .07 | .08 |
| 16 | .49 | .29 | .17 | 9.7 | 5.9 | 11 | 19 | 28 | 2.8 | .22 | .07 | .08 |
| 17 | .49 | .26 | .17 | 6.2 | 5.1 | 10 | 18 | 25 | 2.4 | .85 | .07 | .08 |
| 18 | .49 | .26 | .17 | 5.9 | 4.4 | 11 | 17 | 22 | 2.3 | .94 | .07 | .08 |
| 19 | .45 | .26 | .17 | 3.6 | 3.8 | 13 | 17 | 20 | 1.9 | 1.4 | .78 | .08 |
| 20 | .41 | .29 | .17 | 3.3 | 3.5 | 17 | 18 | 20 | 1.7 | 1.6 | .10 | .07 |
| 21 | .41 | .33 | .17 | 2.8 | 3.6 | 20 | 18 | 21 | 1.4 | .96 | .13 | .08 |
| 22 | .41 | .33 | .17 | 2.2 | 3.8 | 24 | 17 | 21 | 1.3 | .88 | .35 | .07 |
| 23 | .41 | .29 | .17 | 2.1 | 3.8 | 26 | 17 | 20 | 1.1 | .91 | .33 | .14 |
| 24 | .41 | .29 | .17 | 1.9 | 4.0 | 22 | 18 | 18 | 1.1 | 1.2 | .30 | .21 |
| 25 | .41 | .26 | .17 | 1.4 | 4.0 | 22 | 20 | 15 | .92 | 2.5 | .28 | .24 |
| 26 | .37 | .26 | .20 | 1.2 | 4.0 | 22 | 22 | 14 | .86 | 1.1 | .24 | .17 |
| 27 | .37 | .26 | .37 | 1.2 | 4.9 | 22 | 25 | 12 | .98 | .82 | .15 | .12 |
| 28 | .33 | .23 | .96 | 1.1 | 25 | 23 | 25 | 11 | 1.1 | .60 | .11 | .08 |
| 29 | .37 | .23 | 1.2 | 1.3 | --- | 24 | 23 | 9.8 | 1.2 | .46 | .09 | .07 |
| 30 | .54 | .23 | .98 | 7.1 | --- | 26 | 21 | 9.3 | 1.1 | .38 | .08 | .07 |
| 31 | .49 | --- | .69 | 36 | --- | 30 | --- | 9.0 | --- | .38 | .08 | --- |
| TOTAL | 17.44 | 9.90 | 8.98 | 100.57 | 180.5 | 1185 | 598 | 541.1 | 109.86 | 22.12 | 5.65 | 6.44 |
| MEAN | .56 | .33 | .29 | 3.24 | 6.45 | 38.2 | 19.9 | 17.5 | 3.66 | .71 | .18 | .21 |
| MAX | 2.6 | .45 | 1.2 | 36 | 25 | 264 | 38 | 29 | 9.0 | 2.5 | .78 | 1.4 |
| MIN | .14 | .23 | .17 | .26 | 3.5 | 10 | 12 | 9.0 | .86 | .22 | .07 | .07 |
| AC-FT | 35 | 20 | 18 | 199 | 358 | 2350 | 1190 | 1070 | 218 | 44 | 11 | 13 |

CAL YR 1977 TOTAL 293.66 MEAN .81 MAX 20 MIN .00 AC-FT 583
WTR YR 1978 TOTAL 2785.56 MEAN 7.63 MAX 264 MIN .07 AC-FT 5530

## 09466500 GILA RIVER AT CALVA, AZ
(National stream-quality accounting network station)

LOCATION.--Lat 33°11'08", long 110°13'10", in SW¼ sec.8, T.3 S., R.21 E. (unsurveyed), Graham County, Hydrologic Unit 15040005, in San Carlos Indian Reservation, on right upstream abutment of Southern Pacific Railroad bridge at head of San Carlos Reservoir, 2.0 mi (3.2 km) west of Calva.

DRAINAGE AREA.--11,470 $mi^2$ (29,710 $km^2$).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1929 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,517.29 ft (767.270 m) National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1954, and Aug. 25, 1958, to Dec. 31, 1962, at datum 2.52 ft (0.768 m) lower. Oct. 1, 1954, to Aug. 24, 1958, at datum 5.52 ft (1.682 m) lower. Dec. 31, 1962, to Oct. 20, 1972, at site 530 ft (162 m) downstream at datum 3.65 ft (1.113 m) lower. Oct. 20, 1972, to Sept. 30, 1974, supplementary gage at bridge on U.S. Highway 70, 6.2 mi (10.0 km) upstream at datum 2,560.19 ft (780.346 m) NGVD.

REMARKS.--Records good except those above 1,000 $ft^3/s$ (24 $m^3/s$), which are poor. Diversion above station for irrigation of about 69,000 acres (279 $km^2$), metallurgical treatment of ores, and municipal uses.

AVERAGE DISCHARGE.--49 years, 263 $ft^3/s$ (7.448 $m^3/s$), 190,000 acre-ft/yr (234 $hm^3/yr$); median of yearly mean discharges, 180 $ft^3/s$ (5.10 $m^3/s$), 130,000 acre-ft/yr (160 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 80,000 $ft^3/s$ (2,270 $m^3/s$) Oct. 20, 1972, gage height, 15.88 ft (4.840 m) at supplementary gage, from rating curve extended above 44,000 $ft^3/s$ (1,250 $m^3/s$); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge since at least 1914, probably in excess of 100,000 $ft^3/s$ (2,830 $m^3/s$) Jan. 20, 1916, determined on basis of peak discharge at stations near Solomon and at Kelvin.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 19,000 $ft^3/s$ (538 $m^3/s$) Mar. 4, gage height, 10.88 ft (3.316 m), base discharge, 3,000 $ft^3/s$ (85 $m^3/s$); minimum daily, 0.10 $ft^3/s$ (0.003 $m^3/s$) Sept. 25-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 8.2 | 42 | 58 | 50 | 253 | 297 | 668 | 76 | 27 | 6.7 | 56 | .60 |
| 2 | 8.2 | 40 | 49 | 74 | 582 | 1770 | 650 | 74 | 28 | 6.7 | 44 | .60 |
| 3 | 8.5 | 40 | 47 | 79 | 605 | 7850 | 650 | 76 | 31 | 6.7 | 8.9 | .70 |
| 4 | 8.2 | 44 | 45 | 79 | 470 | 18000 | 615 | 76 | 30 | 6.7 | 6.7 | 5.5 |
| 5 | 8.2 | 44 | 43 | 85 | 406 | 12500 | 560 | 74 | 27 | 6.3 | 6.0 | 62 |
| 6 | 62 | 45 | 41 | 84 | 363 | 6100 | 510 | 72 | 26 | 6.0 | 5.0 | 14 |
| 7 | 25 | 50 | 39 | 85 | 359 | 4220 | 458 | 70 | 24 | 5.8 | 4.7 | 7.4 |
| 8 | 20 | 50 | 32 | 84 | 323 | 3560 | 432 | 68 | 21 | 5.5 | 4.4 | 4.1 |
| 9 | 50 | 50 | 29 | 80 | 323 | 2680 | 395 | 66 | 18 | 5.5 | 4.4 | 3.0 |
| 10 | 63 | 55 | 25 | 65 | 297 | 2230 | 356 | 63 | 14 | 5.0 | 3.9 | 2.6 |
| 11 | 36 | 58 | 22 | 59 | 486 | 1820 | 320 | 58 | 12 | 5.5 | 3.2 | 2.6 |
| 12 | 43 | 62 | 21 | 65 | 420 | 1540 | 278 | 55 | 10 | 5.8 | 2.8 | 2.1 |
| 13 | 42 | 63 | 20 | 63 | 359 | 1390 | 238 | 55 | 10 | 7.0 | 2.8 | 1.5 |
| 14 | 40 | 64 | 21 | 66 | 360 | 1240 | 224 | 52 | 10 | 6.3 | 2.8 | 1.0 |
| 15 | 37 | 63 | 21 | 100 | 330 | 1060 | 207 | 50 | 11 | 7.8 | 2.6 | .70 |
| 16 | 32 | 63 | 22 | 195 | 310 | 928 | 172 | 47 | 10 | 5.0 | 2.5 | .60 |
| 17 | 40 | 62 | 22 | 192 | 300 | 851 | 150 | 45 | 10 | 3.6 | 2.1 | .60 |
| 18 | 37 | 62 | 23 | 278 | 270 | 762 | 140 | 43 | 9.6 | 6.0 | 1.9 | .40 |
| 19 | 34 | 63 | 23 | 238 | 260 | 728 | 130 | 42 | 9.3 | 3.8 | 1.7 | .30 |
| 20 | 32 | 62 | 24 | 178 | 240 | 710 | 120 | 41 | 9.3 | 3.4 | 1.7 | .20 |
| 21 | 32 | 64 | 24 | 174 | 229 | 674 | 111 | 39 | 8.9 | 4.1 | 1.6 | .20 |
| 22 | 31 | 64 | 25 | 185 | 207 | 674 | 105 | 39 | 8.5 | 15 | 1.5 | .20 |
| 23 | 30 | 60 | 25 | 161 | 207 | 788 | 98 | 38 | 9.3 | 10 | 1.4 | .20 |
| 24 | 30 | 57 | 26 | 153 | 207 | 844 | 91 | 36 | 8.9 | 6.0 | 2.8 | .20 |
| 25 | 31 | 59 | 27 | 142 | 214 | 907 | 84 | 34 | 8.5 | 14 | 5.8 | .10 |
| 26 | 28 | 58 | 27 | 149 | 255 | 865 | 84 | 33 | 8.2 | 6.3 | 2.8 | .10 |
| 27 | 28 | 58 | 29 | 142 | 246 | 800 | 82 | 30 | 8.5 | 5.5 | 1.7 | .10 |
| 28 | 28 | 57 | 30 | 129 | 258 | 770 | 80 | 29 | 17 | 4.7 | 1.3 | .10 |
| 29 | 29 | 59 | 33 | 132 | --- | 752 | 78 | 28 | 8.5 | 3.6 | 1.0 | .10 |
| 30 | 32 | 64 | 55 | 132 | --- | 716 | 76 | 26 | 8.2 | 32 | 1.0 | .10 |
| 31 | 35 | --- | 56 | 134 | --- | 716 | --- | 26 | --- | 12 | .70 | --- |
| TOTAL | 968.3 | 1682 | 984 | 3832 | 9139 | 78762 | 8162 | 1561 | 441.7 | 228.3 | 189.70 | 111.90 |
| MEAN | 31.2 | 56.1 | 31.7 | 124 | 326 | 2541 | 272 | 50.4 | 14.7 | 7.36 | 6.12 | 3.73 |
| MAX | 63 | 64 | 58 | 278 | 605 | 18000 | 668 | 76 | 31 | 32 | 56 | 62 |
| MIN | 8.2 | 40 | 20 | 50 | 207 | 297 | 76 | 26 | 8.2 | 3.4 | .70 | .10 |
| AC-FT | 1920 | 3340 | 1950 | 7600 | 18130 | 156200 | 16190 | 3100 | 876 | 453 | 376 | 222 |

CAL YR 1977 TOTAL 31988.45 MEAN 87.6 MAX 1560 MIN .51 AC-FT 63450
WTR YR 1978 TOTAL 106061.90 MEAN 291 MAX 18000 MIN .10 AC-FT 210400

09466500 GILA RIVER AT CALVA, AZ--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1974 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | TUR-BID-ITY (JTU) | OXYGEN, DIS-SOLVED (MG/L) | COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 19... | 1000 | 45 | 2750 | 8.4 | 16.0 | 480 | 9.0 | 800 |
| NOV | | | | | | | | |
| 14... | 1130 | 60 | 2075 | 8.3 | 11.5 | 360 | 13.5 | 300 |
| DEC | | | | | | | | |
| 14... | 1030 | 20 | 7000 | 8.5 | 6.5 | 15 | 12.8 | 24 |
| JAN | | | | | | | | |
| 15... | 1000 | 302 | 1700 | 7.9 | 9.0 | 3300 | 9.4 | 4530 |
| FEB | | | | | | | | |
| 10... | 1100 | 290 | 1465 | 7.9 | 12.5 | 240 | 9.4 | 240 |
| MAR | | | | | | | | |
| 22... | 0930 | 680 | 1650 | 7.9 | 17.0 | 230 | 9.1 | 100 |
| APR | | | | | | | | |
| 11... | 1300 | 316 | 2800 | 8.1 | 20.0 | 85 | 8.2 | 19 |
| MAY | | | | | | | | |
| 16... | 1100 | 50 | 7900 | 8.0 | 30.0 | 3 | 11.0 | 34 |
| JUN | | | | | | | | |
| 12... | 1100 | 37 | 7600 | 7.9 | 23.0 | 0 | 8.6 | 92 |
| JUL | | | | | | | | |
| 18... | 1015 | 6.0 | 7400 | 8.2 | 37.0 | 25 | 13.0 | -- |
| AUG | | | | | | | | |
| 09... | 1200 | 39 | 7500 | 8.3 | 32.0 | -- | 10.0 | 50 |

| DATE | STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | BICAR-BONATE (MG/L AS HCO3) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 19... | 2600 | 420 | 210 | 120 | 29 | 360 | 7.7 | 9.5 | 260 |
| NOV | | | | | | | | | |
| 14... | 2300 | 350 | 140 | 100 | 24 | 310 | 7.2 | 7.3 | 260 |
| DEC | | | | | | | | | |
| 14... | 123 | 1100 | 820 | 300 | 81 | 1000 | 13 | 17 | 320 |
| JAN | | | | | | | | | |
| 15... | 2700 | 320 | 120 | 89 | 23 | 280 | 6.8 | 7.7 | 240 |
| FEB | | | | | | | | | |
| 10... | 1000 | 280 | 100 | 82 | 19 | 180 | 4.7 | 5.8 | 220 |
| MAR | | | | | | | | | |
| 22... | 263 | 330 | 150 | 94 | 24 | 220 | 5.2 | 7.1 | 220 |
| APR | | | | | | | | | |
| 11... | 323 | 500 | 270 | 140 | 37 | 400 | 7.8 | 9.6 | 280 |
| MAY | | | | | | | | | |
| 16... | 216 | 1300 | 990 | 320 | 110 | 1200 | 15 | 20 | -- |
| JUN | | | | | | | | | |
| 12... | 1430 | 1100 | 1100 | 340 | 62 | 1200 | 16 | 18 | -- |
| JUL | | | | | | | | | |
| 18... | -- | 1200 | 1000 | 310 | 99 | 1200 | 15 | 21 | -- |
| AUG | | | | | | | | | |
| 09... | 330 | 1100 | 950 | 300 | 90 | 1100 | 14 | 21 | -- |

09466500 GILA RIVER AT CALVA, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | CARBONATE (MG/L AS CO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | SOLIDS, DISSOLVED (TONS PER AC-FT) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 19... | 0 | 190 | 570 | 1.3 | 38 | 1450 | 1450 | 1.97 |
| NOV | | | | | | | | |
| 14... | 0 | 160 | 420 | 1.5 | 38 | 1180 | 1190 | 1.60 |
| DEC | | | | | | | | |
| 14... | 0 | 680 | 1700 | 1.7 | 36 | 4010 | 3970 | 5.45 |
| JAN | | | | | | | | |
| 15... | 0 | 170 | 380 | 1.3 | 27 | 1080 | 1100 | 1.47 |
| FEB | | | | | | | | |
| 10... | 0 | 120 | 260 | 1.1 | 22 | 822 | 799 | 1.12 |
| MAR | | | | | | | | |
| 22... | 0 | 160 | 320 | 1.3 | 33 | 954 | 968 | 1.30 |
| APR | | | | | | | | |
| 11... | 0 | 260 | 650 | 1.1 | 15 | 1640 | 1650 | 2.23 |
| MAY | | | | | | | | |
| 16... | -- | 780 | 1900 | 1.4 | 29 | 4460 | 4520 | 6.07 |
| JUN | | | | | | | | |
| 12... | -- | 750 | 2200 | 1.7 | 24 | 4680 | 4610 | 6.36 |
| JUL | | | | | | | | |
| 18... | -- | 730 | 2000 | 1.7 | 36 | 4480 | 4510 | 6.09 |
| AUG | | | | | | | | |
| 09... | -- | 700 | 1900 | 1.6 | 31 | 4370 | 4250 | 5.94 |

| DATE | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) | NITROGEN, AMMONIA TOTAL (MG/L AS N) | NITROGEN, ORGANIC TOTAL (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | NITROGEN, NH4 + ORG. SUSP. TOTAL (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N) | NITROGEN, NH4 + ORG. TOT IN BOT MAT (MG/KG AS N) | NITROGEN, TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | PHOSPHORUS, DISSOLVED (MG/L AS P) | PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 19... | .36 | .39 | .07 | 1.4 | 1.5 | -- | .38 | -- | 1.9 | .63 | .57 | .55 |
| NOV | | | | | | | | | | | | |
| 14... | .38 | -- | .01 | .72 | .73 | -- | -- | -- | 1.1 | .33 | .08 | -- |
| DEC | | | | | | | | | | | | |
| 14... | .85 | -- | .04 | -- | -- | -- | .35 | -- | -- | .03 | .00 | -- |
| JAN | | | | | | | | | | | | |
| 15... | .63 | -- | .28 | -- | -- | -- | .42 | -- | -- | 2.8 | .06 | -- |
| FEB | | | | | | | | | | | | |
| 10... | .47 | -- | .03 | .52 | .55 | .26 | .29 | -- | 1.0 | .83 | .07 | -- |
| MAR | | | | | | | | | | | | |
| 22... | .71 | -- | .08 | 1.1 | 1.2 | .85 | .35 | -- | 1.9 | .82 | .11 | -- |
| APR | | | | | | | | | | | | |
| 11... | .94 | -- | .06 | .44 | .50 | .00 | 1.0 | -- | 1.4 | .38 | .05 | -- |
| MAY | | | | | | | | | | | | |
| 16... | .25 | -- | .01 | -- | -- | -- | .52 | -- | -- | .02 | .01 | -- |
| JUN | | | | | | | | | | | | |
| 12... | .01 | -- | .00 | .38 | .38 | .00 | .64 | 490 | .39 | .01 | .00 | -- |
| JUL | | | | | | | | | | | | |
| 18... | .02 | -- | .00 | 1.4 | 1.4 | .80 | .60 | -- | 1.4 | .19 | .04 | -- |
| AUG | | | | | | | | | | | | |
| 09... | .02 | -- | .02 | 1.1 | 1.1 | .71 | .39 | -- | 1.1 | .12 | .00 | -- |

09466500 GILA RIVER AT CALVA, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | ARSENIC TOTAL (UG/L AS AS) | ARSENIC DIS-SOLVED (UG/L AS AS) | ARSENIC TOTAL IN BOT-TOM MA-TERIAL (UG/G AS AS) | BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) | BARIUM, DIS-SOLVED (UG/L AS BA) | BARIUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS BA) | BORON, TOTAL RECOV-ERABLE (UG/L AS B) | BORON, DIS-SOLVED (UG/L AS B) | CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) | CADMIUM DIS-SOLVED (UG/L AS CD) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | |
| 19... | 6 | -- | -- | 700 | -- | -- | 410 | 310 | 10 | -- |
| NOV | | | | | | | | | | |
| 14... | 8 | 5 | -- | 300 | 100 | -- | 400 | 290 | 1 | 1 |
| DEC | | | | | | | | | | |
| 14... | 3 | -- | -- | 200 | -- | -- | 1100 | -- | 3 | -- |
| JAN | | | | | | | | | | |
| 15... | 21 | -- | -- | 1500 | -- | -- | 390 | -- | 0 | -- |
| FEB | | | | | | | | | | |
| 10... | 6 | 6 | -- | 200 | 100 | -- | 230 | -- | 2 | 2 |
| MAR | | | | | | | | | | |
| 22... | 3 | -- | -- | 400 | -- | -- | 240 | -- | 1 | -- |
| APR | | | | | | | | | | |
| 11... | 7 | -- | -- | 400 | -- | -- | 450 | -- | 2 | -- |
| MAY | | | | | | | | | | |
| 16... | 2 | -- | -- | 100 | -- | -- | 1200 | -- | 1 | -- |
| JUN | | | | | | | | | | |
| 12... | 3 | -- | 3 | 50 | -- | 60 | 1100 | -- | 1 | -- |
| JUL | | | | | | | | | | |
| 18... | 4 | -- | -- | 200 | -- | -- | 1100 | -- | 0 | -- |
| AUG | | | | | | | | | | |
| 09... | 3 | 3 | -- | 200 | -- | -- | 1100 | -- | 0 | 0 |

| DATE | CADMIUM RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CD) | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) | CHRO-MIUM, DIS-SOLVED (UG/L AS CR) | CHRO-MIUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G) | COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) | COBALT, DIS-SOLVED (UG/L AS CO) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) | COPPER, DIS-SOLVED (UG/L AS CU) | COPPER, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CU) | IRON, TOTAL RECOV-ERABLE (UG/L AS FE) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | |
| 19... | -- | 85 | -- | -- | -- | -- | 120 | -- | -- | 24000 |
| NOV | | | | | | | | | | |
| 14... | -- | 20 | -- | -- | 9 | 0 | 110 | 4 | -- | 17000 |
| DEC | | | | | | | | | | |
| 14... | -- | 10 | -- | -- | -- | -- | 17 | -- | -- | 680 |
| JAN | | | | | | | | | | |
| 15... | -- | 140 | -- | -- | -- | -- | 560 | -- | -- | 120000 |
| FEB | | | | | | | | | | |
| 10... | -- | 30 | 0 | -- | 10 | 0 | 90 | 5 | -- | 17000 |
| MAR | | | | | | | | | | |
| 22... | -- | 20 | -- | -- | -- | -- | 140 | -- | -- | 11000 |
| APR | | | | | | | | | | |
| 11... | -- | 10 | -- | -- | -- | -- | 50 | -- | -- | 4000 |
| MAY | | | | | | | | | | |
| 16... | -- | 25 | -- | -- | -- | -- | 16 | -- | -- | 100 |
| JUN | | | | | | | | | | |
| 12... | 0 | 15 | -- | 6 | -- | -- | 11 | -- | 20 | 90 |
| JUL | | | | | | | | | | |
| 18... | -- | 0 | -- | -- | -- | -- | 14 | -- | -- | 560 |
| AUG | | | | | | | | | | |
| 09... | -- | 10 | 0 | -- | 4 | 0 | 8 | 1 | -- | 740 |

09466500 GILA RIVER AT CALVA, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | IRON, DIS-SOLVED (UG/L AS FE) | LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) | LEAD, DIS-SOLVED (UG/L AS PB) | LEAD, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS PB) | MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) | MANGA-NESE, DIS-SOLVED (UG/L AS MN) | MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) | MERCURY DIS-SOLVED (UG/L AS HG) | MERCURY RECOV. FM BOT-TOM MA-TERIAL (UG/L AS HG) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 19... | 40 | <100 | -- | -- | 910 | 20 | .0 | -- | -- |
| NOV | | | | | | | | | |
| 14... | 70 | 22 | 5 | -- | 8 | 0 | .0 | .0 | -- |
| DEC | | | | | | | | | |
| 14... | -- | 33 | -- | -- | 350 | -- | .0 | -- | -- |
| JAN | | | | | | | | | |
| 15... | -- | 4 | -- | -- | 5800 | -- | .2 | -- | -- |
| FEB | | | | | | | | | |
| 10... | 20 | 21 | 0 | -- | 620 | 0 | .0 | .0 | -- |
| MAR | | | | | | | | | |
| 22... | -- | 15 | -- | -- | 620 | -- | .0 | -- | -- |
| APR | | | | | | | | | |
| 11... | -- | 11 | -- | -- | 240 | -- | .0 | -- | -- |
| MAY | | | | | | | | | |
| 16... | -- | 6 | -- | -- | 280 | -- | .0 | -- | -- |
| JUN | | | | | | | | | |
| 12... | -- | 15 | -- | 0 | 60 | -- | .1 | -- | .0 |
| JUL | | | | | | | | | |
| 18... | -- | 5 | -- | -- | 330 | -- | .0 | -- | -- |
| AUG | | | | | | | | | |
| 09... | 30 | 8 | 9 | -- | 710 | 540 | .0 | .0 | -- |

| DATE | SELE-NIUM, TOTAL (UG/L AS SE) | SELE-NIUM, DIS-SOLVED (UG/L AS SE) | SELE-NIUM, TOTAL IN BOT-TOM MA-TERIAL (UG/G) | SILVER, TOTAL RECOV-ERABLE (UG/L AS AG) | SILVER, DIS-SOLVED (UG/L AS AG) | SILVER, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS AG) | ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) | ZINC, DIS-SOLVED (UG/L AS ZN) | ZINC, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS ZN) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 19... | 0 | -- | -- | <10 | -- | -- | 140 | -- | -- |
| NOV | | | | | | | | | |
| 14... | 1 | 0 | -- | 0 | 0 | -- | 120 | 30 | -- |
| DEC | | | | | | | | | |
| 14... | 1 | -- | -- | 0 | -- | -- | 40 | -- | -- |
| JAN | | | | | | | | | |
| 15... | 2 | -- | -- | 0 | -- | 0 | 600 | -- | -- |
| FEB | | | | | | | | | |
| 10... | 1 | 0 | -- | 0 | 0 | -- | 120 | 20 | -- |
| MAR | | | | | | | | | |
| 22... | 2 | -- | -- | 1 | -- | -- | 80 | -- | -- |
| APR | | | | | | | | | |
| 11... | 0 | -- | -- | 0 | -- | -- | 40 | -- | -- |
| MAY | | | | | | | | | |
| 16... | 0 | -- | -- | 0 | -- | -- | 30 | -- | -- |
| JUN | | | | | | | | | |
| 12... | 0 | -- | 0 | 0 | -- | 0 | 30 | -- | 11 |
| JUL | | | | | | | | | |
| 18... | 0 | -- | -- | 0 | -- | -- | 30 | -- | -- |
| AUG | | | | | | | | | |
| 09... | 0 | 0 | -- | 0 | 0 | -- | 20 | 10 | -- |

< Actual value is known to be less than value shown.

09466500 GILA RIVER AT CALVA, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | CARBON, ORGANIC TOTAL (MG/L AS C) | CYANIDE TOTAL (MG/L AS CN) | CYANIDE TOTAL IN BOTTOM MATERIAL (UG/G AS CN) | PHENOLS (UG/L) | PHYTOPLANKTON, TOTAL (CELLS PER ML) | PERIPHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M | PERIPHYTON BIOMASS ASH WEIGHT G/SQ M | SEDIMENT, SUSPENDED (MG/L) | SEDIMENT DISCHARGE, SUSPENDED (T/DAY) | SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | |
| 10... | 12 | .00 | -- | 0 | -- | -- | -- | 755 | 92 | 97 |
| NOV | | | | | | | | | | |
| 18... | -- | .00 | -- | 1 | 6000 | 35.5 | 33.0 | 735 | 119 | 98 |
| DEC | | | | | | | | | | |
| 14... | 3.6 | .00 | -- | 2 | -- | -- | -- | 40 | 2.2 | 61 |
| JAN | | | | | | | | | | |
| 15... | 06 | .00 | -- | 4 | -- | -- | -- | 11100 | 9050 | 76 |
| FEB | | | | | | | | | | |
| 10... | 11 | .00 | -- | 7 | -- | -- | -- | 1040 | 814 | 75 |
| MAR | | | | | | | | | | |
| 04... | -- | -- | -- | -- | -- | -- | -- | 7920 | -- | 98 |
| 22... | -- | .00 | -- | 0 | 140 | -- | -- | 649 | 1190 | 81 |
| APR | | | | | | | | | | |
| 11... | 6.8 | .00 | -- | 1 | -- | -- | -- | -- | -- | -- |
| MAY | | | | | | | | | | |
| 16... | 6.4 | .00 | -- | 2 | 6100 | 69.0 | 65.3 | 71 | 9.6 | 62 |
| JUN | | | | | | | | | | |
| 12... | 5.4 | .00 | 0 | 4 | -- | -- | -- | 3 | .30 | 41 |
| JUL | | | | | | | | | | |
| 18... | 13 | .00 | -- | 1 | 26000 | 2.76 | 2.13 | -- | -- | -- |
| AUG | | | | | | | | | | |
| 09... | -- | .00 | -- | 4 | 22000 | -- | -- | 67 | 7.1 | 76 |

| DATE | TIME | PCB, TOTAL IN BOTTOM MATERIAL (UG/KG) | ALDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) | CHLORDANE, TOTAL IN BOTTOM MATERIAL (UG/KG) | DDD, TOTAL IN BOTTOM MATERIAL (UG/KG) | DDE, TOTAL IN BOTTOM MATERIAL (UG/KG) | DDT, TOTAL IN BOTTOM MATERIAL (UG/KG) | DIAZINON, TOTAL IN BOTTOM MATERIAL (UG/KG) | DIELDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) | ENDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) | ETHION, TOTAL IN BOTTOM MATERIAL (UG/KG) | HEPTACHLOR, TOTAL IN BOTTOM MATERIAL (UG/KG) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| JUN 12... | 1100 | 0 | .0 | 0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 |

| DATE | HEPTACHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG) | LINDANE TOTAL IN BOTTOM MATERIAL (UG/KG) | MALATHION, TOTAL IN BOTTOM MATERIAL (UG/KG) | METHYL PARATHION, TOT. IN BOTTOM MATL. (UG/KG) | METHYL TRITHION, TOT. IN BOTTOM MATL. (UG/KG) | PARATHION, TOTAL IN BOTTOM MATERIAL (UG/KG) | TOXAPHENE, TOTAL IN BOTTOM MATERIAL (UG/KG) | TRITHION, TOTAL IN BOTTOM MATERIAL (UG/KG) | 2,4-D, TOTAL IN BOTTOM MATERIAL (UG/KG) | 2,4,5-T TOTAL IN BOTTOM MATERIAL (UG/KG) | SILVEX, TOTAL IN BOTTOM MATERIAL (UG/KG) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| JUN 12... | .0 | .0 | .0 | .0 | .0 | .3 | 0 | .0 | 8 | 0 | 1.0 |

09466500 GILA RIVER AT CALVA, AZ--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

PHYTOPLANKTON

| DATE | NOV 14,77 | | MAR 22,78 | | MAY 16,78 | | JUL 18,78 | |
|---|---|---|---|---|---|---|---|---|
| TIME | 1130 | | 0930 | | 1100 | | 1015 | |
| TOTAL CELLS/ML | 6000 | | 140 | | 6100 | | 26000 | |
| DIVERSITY: DIVISION | 0.0 | | 0.0 | | 0.5 | | 0.9 | |
| .CLASS | 0.0 | | 0.0 | | 0.5 | | 0.9 | |
| ..ORDER | 0.3 | | 0.0 | | 1.3 | | 1.1 | |
| ...FAMILY | 2.1 | | 2.4 | | 1.6 | | 1.1 | |
| ....GENUS | 2.1 | | 2.7 | | 1.7 | | 1.1 | |
| ORGANISM | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT |
| CHLOROPHYTA (GREEN ALGAE) | | | | | | | | |
| .CHLOROPHYCEAE | | | | | | | | |
| ..CHLOROCOCCALES | | | | | | | | |
| ...SCENEDESMACEAE | | | | | | | | |
| ....SCENEDESMUS | -- | - | -- | - | -- | - | 1500 | 6 |
| ..VOLVOCALES | | | | | | | | |
| ...CHLAMYDOMONADACEAE | | | | | | | | |
| ....CHLAMYDOMONAS | -- | - | -- | - | 230 | 4 | -- | - |
| CHRYSOPHYTA | | | | | | | | |
| .BACILLARIOPHYCEAE | | | | | | | | |
| ..PENNALES | | | | | | | | |
| ...NAVICULACEAE | | | | | | | | |
| ....ENTOMONEIS | -- | - | 14 | 10 | 94 | 2 | -- | - |
| ..CENTRALES | | | | | | | | |
| ...COSCINODISCACEAE | | | | | | | | |
| ....CYCLOTELLA | 350 | 6 | -- | - | 4100# | 66 | 20000# | 77 |
| ..PENNALES | | | | | | | | |
| ...ACHNANTHACEAE | | | | | | | | |
| ....COCCONEIS | * | 0 | -- | - | -- | - | -- | - |
| ...CYMBELLACEAE | | | | | | | | |
| ....CYMBELLA | -- | - | 27# | 20 | -- | - | -- | - |
| ....RHOPALODIA | -- | - | 14 | 10 | -- | - | -- | - |
| ...DIATOMACEAE | | | | | | | | |
| ....DIATOMA | -- | - | 14 | 10 | -- | - | -- | - |
| ...FRAGILARIACEAE | | | | | | | | |
| ....SYNEDRA | 1100# | 18 | 27# | 20 | 230 | 4 | 210 | 1 |
| ...GOMPHONEMATACEAE | | | | | | | | |
| ....GOMPHONEMA | -- | - | 14 | 10 | -- | - | -- | - |
| ...NAVICULACEAE | | | | | | | | |
| ....NAVICULA | 2100# | 35 | -- | - | 940# | 15 | 210 | 1 |
| ...NITZSCHIACEAE | | | | | | | | |
| ....NITZSCHIA | 1100# | 18 | 27# | 20 | 94 | 2 | -- | - |
| ...SURIRELLACEAE | | | | | | | | |
| ....SURIRELLA | 1400# | 24 | -- | - | 230 | 4 | 210 | 1 |
| CYANOPHYTA (BLUE-GREEN ALGAE) | | | | | | | | |
| .CYANOPHYCEAE | | | | | | | | |
| ..CHROCOCCALES | | | | | | | | |
| ...CHROCOCCACEAE | | | | | | | | |
| ....ANACYSTIS | -- | - | -- | - | 230 | 4 | -- | - |
| ..HORMOGONALES | | | | | | | | |
| ...NOSTOCACEAE | | | | | | | | |
| ....ANABAENA | -- | - | -- | - | -- | - | 3900 | 15 |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

## 09468500 SAN CARLOS RIVER NEAR PERIDOT, AZ

LOCATION.--Lat 33°19'16", long 110°26'54", in NW¼ sec.30, T.1 S., R.19 E. (unsurveyed), Gila County, Hydrologic Unit 15040007, in San Carlos Indian Reservation, on right bank 750 ft (229 m) downstream from highway crossing, 0.8 mi (1.3 km) north of Peridot, and 2.4 mi (3.9 km) south of San Carlos.

DRAINAGE AREA.--1,027 $mi^2$ (2,660 $km^2$).

PERIOD OF RECORD.--August 1910 to January 1911 (gage heights only), April 1914 to July 1915, August to September 1915 (monthly discharge only), October 1929 to current year. Prior to October 1929 published as "at San Carlos."

REVISED RECORDS.--WSP 1283: Drainage area.

GAGE.--Water-stage recorder since Apr. 26, 1914. Datum of gage is 2,578.90 ft (786.049 m) National Geodetic Vertical Datum of 1929. See WSP 1713 or 1733 for history of changes prior to Feb. 1, 1942. Feb. 1, 1942, to Mar. 4, 1969, at site 750 ft (229 m) upstream at different datums. Mar. 5, 1969, to Aug. 13, 1970, at site 300 ft (91 m) upstream at datum 0.88 ft (0.268 m) higher. Supplementary water-stage recorder Dec. 21, 1967, to July 2, 1968, at site 4 mi (6 km) downstream at datum in use prior to Feb. 1, 1942.

REMARKS.--Records fair. Diversions above station for irrigation of about 600 acres (2.43 $km^2$). Small inflow from sewage treatment system about 2 mi (3.2 km) upstream.

AVERAGE DISCHARGE.--49 years (water years 1930-78), 47.3 $ft^3/s$ (1.34 $m^3/s$), 34,270 acre-ft/yr (42.3 $hm^3/yr$); median of yearly mean discharges, 27 $ft^3/s$ (0.76 $m^3/s$), 19,600 acre-ft/yr (24.2 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 40,600 $ft^3/s$ (1,150 $m^3/s$) Mar. 14, 1941, gage height, 11.4 ft (3.47 m), site and datum then in use, from rating curve extended above 23,000 $ft^3/s$ (650 $m^3/s$) on basis of rate of change in storage in San Carlos Reservoir; no flow at times in most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*) and peak discharges above base of 2,200 $ft^3/s$ (62 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) | Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Oct. 6 | 1830 | 3,100 | 87.8 | 6.23 | 1.899 | July 22 | 1830 | 2,780 | 78.7 | 5.45 | 1.661 |
| Jan. 31 | 2000 | 2,210 | 62.6 | 5.46 | 1.664 | July 29 | 2000 | 2,540 | 71.9 | 5.25 | 1.600 |
| Feb. 11 | 0830 | 5,700 | 161 | 8.58 | 2.615 | Aug. 1 | 2130 | 9,650 | 273 | 9.20 | 2.807 |
| Mar. 2 | 0400 | *18,600 | 527 | 11.78 | 3.591 | | | | | | |

Minimum daily, 0.30 $ft^3/s$ (.008 $m^3/s$) July 9-11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 3.1 | 5.3 | 6.4 | 8.0 | 1120 | 9130 | 22 | 8.1 | 2.8 | .90 | 723 | 4.2 |
| 2 | 2.9 | 5.8 | 6.7 | 8.0 | 295 | 13100 | 21 | 8.4 | 3.1 | .80 | 75 | 3.1 |
| 3 | 3.1 | 5.8 | 6.0 | 8.1 | 120 | 2920 | 22 | 8.1 | 2.6 | .70 | 25 | 3.8 |
| 4 | 3.1 | 5.8 | 6.0 | 8.1 | 85 | 793 | 19 | 7.4 | 3.1 | .60 | 68 | 3.4 |
| 5 | 3.6 | 5.8 | 6.7 | 8.1 | 68 | 547 | 18 | 6.4 | 3.1 | .40 | 30 | 16 |
| 6 | 460 | 5.5 | 6.7 | 8.1 | 66 | 748 | 15 | 7.0 | 2.4 | .40 | 28 | 16 |
| 7 | 295 | 5.5 | 6.7 | 8.1 | 66 | 686 | 14 | 8.4 | 2.2 | .40 | 22 | 7.4 |
| 8 | 57 | 5.5 | 6.7 | 8.4 | 104 | 410 | 13 | 7.8 | 1.9 | .40 | 74 | 5.8 |
| 9 | 20 | 5.5 | 6.7 | 9.2 | 133 | 222 | 13 | 6.0 | 2.2 | .30 | 35 | 5.3 |
| 10 | 10 | 5.8 | 6.7 | 9.5 | 122 | 162 | 13 | 6.0 | 1.8 | .30 | 19 | 5.3 |
| 11 | 5.5 | 6.0 | 7.0 | 11 | 2870 | 155 | 13 | 5.0 | 1.6 | .30 | 16 | 5.0 |
| 12 | 4.8 | 6.0 | 7.4 | 11 | 614 | 266 | 11 | 4.1 | 1.9 | .70 | 12 | 4.6 |
| 13 | 4.6 | 6.0 | 7.4 | 10 | 276 | 562 | 10 | 2.8 | 2.1 | .60 | 9.5 | 4.3 |
| 14 | 4.8 | 6.0 | 7.4 | 10 | 421 | 308 | 10 | 2.8 | 1.8 | .60 | 8.8 | 4.6 |
| 15 | 4.6 | 6.0 | 7.4 | 18 | 431 | 199 | 10 | 2.4 | 1.8 | 3.3 | 8.4 | 4.8 |
| 16 | 4.1 | 6.0 | 7.8 | 14 | 374 | 145 | 10 | 2.6 | 1.3 | 1.1 | 8.1 | 5.0 |
| 17 | 3.8 | 5.8 | 8.4 | 41 | 230 | 103 | 10 | 2.8 | 1.0 | 31 | 7.0 | 5.0 |
| 18 | 3.8 | 5.8 | 8.4 | 128 | 122 | 93 | 9.5 | 2.6 | .80 | 7.1 | 6.4 | 4.8 |
| 19 | 3.6 | 5.5 | 8.1 | 45 | 90 | 81 | 8.8 | 2.9 | .70 | 2.8 | 77 | 4.6 |
| 20 | 3.4 | 6.0 | 7.8 | 47 | 58 | 54 | 7.8 | 2.4 | .60 | 1.9 | 12 | 4.6 |
| 21 | 3.4 | 6.4 | 7.8 | 85 | 53 | 49 | 8.1 | 2.8 | .40 | 1.9 | 11 | 4.6 |
| 22 | 4.1 | 6.4 | 8.0 | 100 | 70 | 45 | 10 | 3.3 | .40 | 200 | 8.4 | 4.1 |
| 23 | 4.1 | 6.7 | 8.0 | 86 | 66 | 45 | 10 | 2.8 | .40 | 19 | 7.4 | 4.1 |
| 24 | 4.1 | 6.4 | 8.0 | 73 | 56 | 40 | 9.2 | 3.1 | .40 | 10 | 6.7 | 4.1 |
| 25 | 4.1 | 6.4 | 8.0 | 48 | 48 | 39 | 8.4 | 2.9 | .40 | 9.5 | 7.8 | 4.1 |
| 26 | 4.1 | 6.7 | 8.0 | 40 | 41 | 34 | 8.1 | 2.9 | .40 | 34 | 6.4 | 32 |
| 27 | 4.6 | 6.7 | 8.0 | 33 | 34 | 31 | 7.4 | 2.8 | .60 | 19 | 5.3 | 18 |
| 28 | 4.8 | 6.4 | 8.0 | 32 | 1760 | 26 | 7.0 | 3.3 | 1.4 | 10 | 5.0 | 9.2 |
| 29 | 5.3 | 6.4 | 8.0 | 31 | --- | 25 | 7.0 | 2.8 | 1.9 | 223 | 4.6 | 7.0 |
| 30 | 5.3 | 6.4 | 8.0 | 30 | --- | 23 | 7.4 | 2.8 | 1.1 | 104 | 4.6 | 5.5 |
| 31 | 5.3 | --- | 8.0 | 853 | --- | 22 | --- | 2.6 | --- | 99 | 4.8 | --- |
| TOTAL | 950.0 | 180.3 | 230.2 | 1829.6 | 9791 | 31043 | 352.7 | 136.1 | 46.20 | 784.00 | 1336.2 | 210.3 |
| MEAN | 30.6 | 6.01 | 7.43 | 59.0 | 350 | 1001 | 11.8 | 4.39 | 1.54 | 25.3 | 43.1 | 7.01 |
| MAX | 460 | 6.7 | 8.4 | 853 | 2870 | 13100 | 22 | 8.4 | 3.1 | 223 | 723 | 32 |
| MIN | 2.9 | 5.3 | 6.0 | 8.0 | 34 | 22 | 7.0 | 2.4 | .40 | .30 | 4.6 | 3.1 |
| AC-FT | 1880 | 358 | 457 | 3630 | 19420 | 61570 | 700 | 270 | 92 | 1560 | 2650 | 417 |

CAL YR 1977 TOTAL 6390.50 MEAN 17.5 MAX 496 MIN .00 AC-FT 12680
WTR YR 1978 TOTAL 46889.60 MEAN 128 MAX 13100 MIN .30 AC-FT 93010

GILA RIVER BASIN

## 09469000 SAN CARLOS RESERVOIR AT COOLIDGE DAM, AZ

LOCATION.--Lat 33°10'32", long 110°31'38", in NW¼ sec.17, T.3 S., R.18 E. (unsurveyed), Gila County, Hydrologic Unit 15040005, in San Carlos Indian Reservation, at right intake tower of Coolidge Dam on Gila River.

DRAINAGE AREA.--12,886 $mi^2$ (33,375 $km^2$).

REVISED RECORDS.--WSP 1049: 1929, 1934, 1937-38. WSP 1283: Drainage area.

PERIOD OF RECORD.--November 1928 to current year.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Jan. 15, 1937, series of stakes with tops at known elevations for reference points on right bank about 1,000 ft (300 m) upstream from dam. Jan. 15, 1937, to Dec. 31, 1947, water-stage recorder at present site at datum 0.72 ft (0.219 m) lower.

REMARKS.--Reservoir is formed by concrete multiple-dome dam. Dam completed Oct. 25, 1928; storage began Nov. 15, 1928. Usable capacity (from capacity table computed by San Carlos Irrigation District, based on an estimate of 20,000 acre-ft (25 $hm^3$) of sediment deposited since 1966; used since Jan. 1, 1976) 1,073,000 acre-ft (1,320 $hm^3$) between elevations 2,382.63 ft (726.226 m)—sill of lowest outlet gate—and 2,519.0 ft (767.79 m)—crest of spillway. No dead storage. Figures given herein represent usable contents. Reservoir is used to store water for irrigation of San Carlos project and for power development, dependent on irrigation demands.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 843,300 acre-ft (1,040 $hm^3$) June 1, 1973, elevation, 2,504.67 ft (763.423 m); no usable contents at times.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 272,000 acre-ft (335 $hm^3$) Apr. 7-13, elevation, 2,459.11 ft (749.537 m); minimum, 13,500 acre-ft (16.6 $hm^3$) Oct. 1, 2, 5, elevation, 2,403.74 ft (732.660 m).

Capacity table (elevation, in feet, and usable contents, in acre-ft)

| | | | |
|---|---|---|---|
| 2,400 | 8,250 | 2,430 | 85,400 |
| 2,405 | 15,310 | 2,440 | 135,500 |
| 2,410 | 24,400 | 2,450 | 200,100 |
| 2,420 | 49,100 | 2,460 | 279,100 |

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
INSTANTANEOUS OBSERVATIONS AT 2400

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 13500 | 18200 | 20700 | 17400 | 28700 | 66500 | 268000 | 259000 | 235000 | 194000 | 149000 | 107000 |
| 2 | 13500 | 18300 | 20700 | 17500 | 30400 | 104000 | 269000 | 258000 | 234000 | 193000 | 150000 | 106000 |
| 3 | 13600 | 18400 | 20700 | 17600 | 31400 | 120000 | 270000 | 258000 | 233000 | 191000 | 148000 | 104000 |
| 4 | 13600 | 18400 | 20700 | 17800 | 32100 | 150000 | 270000 | 257000 | 232000 | 190000 | 147000 | 103000 |
| 5 | 13500 | 18500 | 20700 | 18000 | 32800 | 182000 | 271000 | 257000 | 231000 | 188000 | 146000 | 102000 |
| 6 | 14700 | 18600 | 20700 | 18200 | 33300 | 199000 | 271000 | 256000 | 229000 | 187000 | 145000 | 100000 |
| 7 | 16600 | 18600 | 20700 | 18400 | 33700 | 210000 | 272000 | 256000 | 228000 | 185000 | 143000 | 98600 |
| 8 | 16800 | 18700 | 20700 | 18500 | 34200 | 218000 | 272000 | 255000 | 227000 | 184000 | 142000 | 97300 |
| 9 | 17000 | 18800 | 20600 | 18700 | 34600 | 224000 | 272000 | 255000 | 226000 | 182000 | 141000 | 96000 |
| 10 | 17100 | 18800 | 20600 | 18900 | 35200 | 228000 | 272000 | 254000 | 224000 | 180000 | 139000 | 94600 |
| 11 | 17200 | 18900 | 20400 | 19000 | 38700 | 232000 | 272000 | 254000 | 223000 | 179000 | 137000 | 93300 |
| 12 | 17200 | 19000 | 20300 | 19200 | 41400 | 235000 | 272000 | 253000 | 222000 | 178000 | 136000 | 91900 |
| 13 | 17300 | 19100 | 20200 | 19300 | 42500 | 240000 | 272000 | 253000 | 220000 | 176000 | 135000 | 90500 |
| 14 | 17400 | 19200 | 20100 | 19500 | 43400 | 243000 | 271000 | 252000 | 219000 | 174000 | 133000 | 89200 |
| 15 | 17500 | 19300 | 19900 | 20000 | 44700 | 247000 | 271000 | 251000 | 218000 | 172000 | 132000 | 88100 |
| 16 | 17600 | 19400 | 19700 | 20600 | 45700 | 249000 | 270000 | 250000 | 216000 | 171000 | 130000 | 87000 |
| 17 | 17700 | 19500 | 19500 | 21200 | 46600 | 251000 | 270000 | 250000 | 215000 | 169000 | 129000 | 85900 |
| 18 | 17800 | 19600 | 19300 | 21700 | 47400 | 252000 | 269000 | 249000 | 213000 | 167000 | 128000 | 84900 |
| 19 | 17900 | 19700 | 19100 | 22300 | 48100 | 254000 | 268000 | 248000 | 212000 | 165000 | 126000 | 83800 |
| 20 | 17900 | 19800 | 18900 | 22800 | 48700 | 255000 | 268000 | 247000 | 211000 | 164000 | 125000 | 83000 |
| 21 | 17900 | 19900 | 18600 | 23100 | 49100 | 257000 | 267000 | 246000 | 209000 | 162000 | 124000 | 82300 |
| 22 | 17900 | 20000 | 18400 | 23600 | 49600 | 258000 | 266000 | 245000 | 208000 | 161000 | 123000 | 81400 |
| 23 | 18000 | 20100 | 18200 | 24000 | 50000 | 259000 | 265000 | 244000 | 206000 | 160000 | 121000 | 80600 |
| 24 | 18000 | 20200 | 18000 | 24300 | 50400 | 260000 | 265000 | 243000 | 205000 | 158000 | 120000 | 80000 |
| 25 | 18000 | 20200 | 17800 | 24600 | 50800 | 261000 | 264000 | 242000 | 203000 | 157000 | 118000 | 79400 |
| 26 | 18000 | 20400 | 17600 | 25000 | 51300 | 263000 | 263000 | 241000 | 201000 | 156000 | 117000 | 78800 |
| 27 | 18000 | 20500 | 17400 | 25300 | 51700 | 264000 | 262000 | 240000 | 200000 | 154000 | 115000 | 78400 |
| 28 | 18100 | 20600 | 17300 | 25500 | 53300 | 265000 | 261000 | 239000 | 198000 | 153000 | 113000 | 78000 |
| 29 | 18100 | 20600 | 17200 | 25800 | --- | 266000 | 260000 | 238000 | 197000 | 151000 | 112000 | 77600 |
| 30 | 18200 | 20700 | 17200 | 26200 | --- | 267000 | 260000 | 237000 | 195000 | 151000 | 110000 | 77200 |
| 31 | 18200 | --- | 17300 | 26900 | --- | 267000 | --- | 236000 | --- | 150000 | 108000 | --- |
| MAX | 18200 | 20700 | 20700 | 26900 | 53300 | 267000 | 272000 | 259000 | 235000 | 194000 | 150000 | 107000 |
| MIN | 13500 | 18200 | 17200 | 17400 | 28700 | 66500 | 260000 | 236000 | 195000 | 150000 | 108000 | 77200 |
| † | 2406.00 | 2407.96 | 2406.09 | 2411.11 | 2421.46 | 2458.60 | 2457.66 | 2454.76 | 2449.30 | 2442.40 | 2434.90 | 2427.95 |
| ‡ | +4700 | +2500 | -3400 | +9600 | +26400 | +213700 | -7000 | -24000 | -41000 | -45000 | -42000 | -30800 |

CAL YR 1977 MAX 20700 MIN 4.0 ‡ +14,240
WTR YR 1978 MAX 272000 MIN 13500 ‡ +63,700

† Elevation, in feet, at end of month.
‡ Change in contents, in acre-feet.

## 09469500 GILA RIVER BELOW COOLIDGE DAM, AZ

LOCATION.--Lat 33°10'10", long 110°31'50", in SW¼ sec.17, T.3 S., R.18 E. (unsurveyed), Pinal County, Hydrologic Unit 15050100, on left bank 2,200 ft (670 m) downstream from Coolidge Dam.

DRAINAGE AREA.--12,886 $mi^2$ (33,375 $km^2$).

PERIOD OF RECORD.--July to October 1899, April 1900 to March 1902, July to September 1902, December 1902 to December 1904; January to May 1905 (gage heights only); June to November 1905; August 1910 to February 1911 (gage heights only); April 1914 to current year. Published as "at San Carlos" 1899-1911, as "near San Carlos" 1914-26, and as "at Coolidge Dam" 1927-38.

REVISED RECORDS.--WSP 629: 1915-16. WSP 1049: 1899-1904. WSP 1149: 1917(M), 1921, 1922(M), 1923, 1924(M). WSP 1283: Drainage area.

GAGE.--Water-stage recorder and Parshall flume. Datum of gage is 2,309.33 ft (703.884 m) National Geodetic Vertical Datum of 1929. Prior to Feb. 5, 1911, nonrecording gage at various sites and datums upstream from mouth of San Carlos River. Apr. 29, 1914, to Mar. 8, 1937, water-stage recorder at various sites within 1 mi (1.6 km) upstream from present site at different datums.

REMARKS.--Records excellent except those below 10 $ft^3/s$ (0.28 $m^3/s$), which are fair. Flow regulated by San Carlos Reservoir since Nov. 15, 1928. (See sta 09469000.) Record includes flow of Warm Springs, which enters between dam and gage. Large diversions above San Carlos Reservoir for irrigation, metallurgical treatment of ore, and municipal supply; about 69,000 acres (279 $km^2$) of land was irrigated, a considerable portion by pumping from ground water.

AVERAGE DISCHARGE (adjusted for storage in San Carlos Reservoir).--66 years (water years 1901, 1904, 1915-78), 340 $ft^3/s$ (9.629 $m^3/s$), 246,300 acre-ft/yr (303 $hm^3/yr$); median of yearly mean discharges, 210 $ft^3/s$ (5.95 $m^3/s$), 152,000 acre-ft/yr (190 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--1914-28: Maximum discharge, 130,000 $ft^3/s$ (3,680 $m^3/s$) Jan. 20, 1916, estimated on basis of peak discharge near Solomon and at Kelvin; no flow at times.
1928-78: Maximum discharge, 1,350 $ft^3/s$ (38.2 $m^3/s$) July 28, 1952, gage height, 4.64 ft (1.414 m); no flow at times prior to 1938; minimum daily since 1938, 0.40 $ft^3/s$ (0.011 $m^3/s$) in several years.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 811 $ft^3/s$ (23.0 $m^3/s$) July 14, 15; minimum daily, 3.7 $ft^3/s$ (0.105 $m^3/s$) Jan. 6-10, Jan. 18 to Feb. 10, 12-19, Mar. 5-9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 9.6 | 5.4 | 50 | 8.8 | 3.7 | 5.4 | 300 | 386 | 468 | 674 | 720 | 752 |
| 2 | 9.6 | 5.4 | 51 | 8.8 | 3.7 | 5.4 | 298 | 349 | 481 | 674 | 724 | 752 |
| 3 | 9.6 | 5.4 | 51 | 8.0 | 3.7 | 4.8 | 282 | 340 | 493 | 671 | 724 | 752 |
| 4 | 9.6 | 5.4 | 51 | 4.8 | 3.7 | 4.2 | 272 | 313 | 503 | 671 | 724 | 740 |
| 5 | 10 | 5.4 | 51 | 4.2 | 3.7 | 3.7 | 272 | 298 | 548 | 667 | 716 | 716 |
| 6 | 10 | 6.0 | 50 | 3.7 | 3.7 | 3.7 | 293 | 298 | 567 | 667 | 682 | 728 |
| 7 | 8.8 | 6.6 | 50 | 3.7 | 3.7 | 3.7 | 358 | 298 | 561 | 674 | 615 | 728 |
| 8 | 8.8 | 6.6 | 50 | 3.7 | 3.7 | 3.7 | 363 | 306 | 590 | 678 | 572 | 697 |
| 9 | 8.0 | 6.6 | 53 | 3.7 | 3.7 | 3.7 | 368 | 324 | 607 | 709 | 678 | 642 |
| 10 | 8.0 | 6.0 | 82 | 3.7 | 3.7 | 4.2 | 368 | 327 | 590 | 720 | 682 | 642 |
| 11 | 8.0 | 5.4 | 104 | 4.2 | 4.2 | 4.2 | 354 | 330 | 584 | 726 | 682 | 645 |
| 12 | 8.0 | 5.4 | 102 | 4.2 | 3.7 | 4.2 | 324 | 330 | 577 | 781 | 678 | 638 |
| 13 | 8.0 | 6.0 | 102 | 4.2 | 3.7 | 4.2 | 378 | 327 | 577 | 790 | 678 | 604 |
| 14 | 8.0 | 6.0 | 111 | 4.2 | 3.7 | 4.2 | 426 | 335 | 577 | 811 | 678 | 564 |
| 15 | 7.3 | 6.6 | 128 | 4.2 | 3.7 | 4.2 | 426 | 374 | 584 | 811 | 678 | 528 |
| 16 | 6.6 | 6.6 | 148 | 4.2 | 3.7 | 4.2 | 426 | 429 | 606 | 802 | 678 | 487 |
| 17 | 6.6 | 6.6 | 154 | 4.2 | 3.7 | 4.2 | 426 | 450 | 618 | 795 | 674 | 490 |
| 18 | 14 | 6.6 | 154 | 3.7 | 3.7 | 4.2 | 435 | 450 | 618 | 798 | 674 | 481 |
| 19 | 6.6 | 6.0 | 156 | 3.7 | 3.7 | 4.2 | 459 | 450 | 632 | 798 | 667 | 471 |
| 20 | 6.6 | 6.0 | 154 | 3.7 | 4.2 | 4.2 | 478 | 450 | 656 | 766 | 674 | 450 |
| 21 | 6.6 | 5.4 | 152 | 3.7 | 4.8 | 4.5 | 478 | 447 | 652 | 794 | 671 | 397 |
| 22 | 6.6 | 4.8 | 152 | 3.7 | 5.4 | 115 | 478 | 456 | 663 | 728 | 671 | 383 |
| 23 | 6.6 | 4.8 | 152 | 3.7 | 5.4 | 197 | 478 | 484 | 678 | 752 | 709 | 357 |
| 24 | 6.6 | 4.8 | 152 | 3.7 | 4.8 | 202 | 370 | 512 | 682 | 701 | 712 | 330 |
| 25 | 6.0 | 4.8 | 152 | 3.7 | 4.8 | 202 | 459 | 503 | 697 | 697 | 736 | 306 |
| 26 | 6.0 | 4.8 | 152 | 3.7 | 4.8 | 202 | 447 | 487 | 697 | 701 | 744 | 251 |
| 27 | 6.0 | 4.8 | 152 | 3.7 | 4.8 | 213 | 459 | 462 | 686 | 701 | 761 | 230 |
| 28 | 6.0 | 4.8 | 152 | 3.7 | 5.4 | 261 | 459 | 450 | 686 | 701 | 757 | 232 |
| 29 | 5.4 | 4.8 | 114 | 3.7 | --- | 303 | 459 | 429 | 697 | 697 | 757 | 230 |
| 30 | 5.4 | 20 | 43 | 3.7 | --- | 305 | 459 | 426 | 689 | 693 | 752 | 232 |
| 31 | 5.4 | --- | 8.8 | 3.7 | --- | 295 | --- | 438 | --- | 724 | 752 | --- |
| TOTAL | 238.3 | 183.8 | 3233.8 | 134.3 | 115.2 | 2384.0 | 11852 | 12258 | 18264 | 22572 | 21620 | 15455 |
| MEAN | 7.69 | 6.13 | 104 | 4.33 | 4.11 | 76.9 | 395 | 395 | 609 | 728 | 697 | 515 |
| MAX | 14 | 20 | 156 | 8.8 | 5.4 | 305 | 478 | 512 | 697 | 811 | 761 | 752 |
| MIN | 5.4 | 4.8 | 8.8 | 3.7 | 3.7 | 3.7 | 272 | 298 | 468 | 667 | 572 | 230 |
| AC-FT | 473 | 365 | 6410 | 266 | 228 | 4730 | 23510 | 24310 | 36230 | 44770 | 42880 | 30650 |

CAL YR 1977 TOTAL 25435.90 MEAN 69.7 MAX 253 MIN .80 AC-FT 50450
WTR YR 1978 TOTAL 108310.40 MEAN 297 MAX 811 MIN 3.7 AC-FT 214800

## 09470000 GILA RIVER AT WINKELMAN, AZ

LOCATION.--Lat 33°00'06", long 110°45'55", in NW¼NE¼ sec.13, T.5 S., R.15 E., Gila County, Hydrologic Unit 15050100, on right bank 1 mi (2 km) north of Winkelman, 2.2 mi (3.5 km) upstream from San Pedro River, and 29 mi (47 km) downstream from Coolidge Dam.

DRAINAGE AREA.--13,268 $mi^2$ (34,364 $km^2$), of which 382 $mi^2$ (989 $km^2$) is below Coolidge Dam.

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1917 to June 1918, September 1941 to current year.

REVISED RECORDS.--WSP 1283: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,921.76 ft (585.752 m) National Geodetic Vertical Datum of 1929. Sept. 10, 1917, to June 27, 1918, nonrecording gage at bridge 1.4 mi (2.3 km) downstream at different datum. September 1941 to Jan. 5, 1964, at site about 400 ft (120 m) upstream at datum 0.81 ft (0.247 m) lower. Supplementary nonrecording gage 1.3 mi (2.1 km) downstream since Aug. 9, 1963, at datum 13.68 ft (4.170 m) lower; supplementary water-stage recorder Jan. 6, 1964, to Nov. 24, 1975, at bridge 1.4 mi (2.3 km) downstream at datum 14.76 ft (4.499 m) lower.

REMARKS.--Records good. Large diversions above station for irrigation, metallurgical treatment of ore, and municipal supply, but none between Coolidge Dam and this station. About 69,000 acres (279 $km^2$) irrigated in the basin above Coolidge Dam, a considerable portion by pumping from ground water. Flow regulated by San Carlos Reservoir (See sta 09469000).

AVERAGE DISCHARGE (adjusted for storage in San Carlos Reservoir).--37 years (water years 1942-78), 246 $ft^3/s$ (6.97 $m^3/s$), 178,200 acre-ft/yr (220 $hm^3/yr$); median of yearly mean discharges, 170 $ft^3/s$ (4.81 $m^3/s$), 123,000 acre-ft/yr (150 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 55,000 $ft^3/s$ (1,560 $m^3/s$) of which 500 $ft^3/s$ (14.2 $m^3/s$) was released by Coolidge Dam, Aug. 9, 1944, gage height, 18.40 ft (5.608 m), from rating curve extended above 2,900 $ft^3/s$ (82 $m^3/s$) on basis of slope-area measurement of peak flow; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*) and peak discharges, unadjusted for release from Coolidge Dam, above base of 1,300 $ft^3/s$ (37 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|
| Oct. 6 | 2100 | *5,020 | 142 | 11.04 | 3.365 |
| Jan. 15 | 2200 | 3,710 | 105 | 9.25 | 2.819 |
| Feb. 11 | 1100 | 3,420 | 96.8 | 8.81 | 2.685 |
| Mar. 2 | 2345 | 2,880 | 81.6 | 7.97 | 2.429 |
| June 28 | 1915 | 1,320 | 37.4 | 5.16 | 1.573 |
| July 22 | 2145 | 1,470 | 41.6 | 5.45 | 1.661 |
| Aug. 1 | 0715 | 4,660 | 132 | 10.58 | 3.225 |

Minimum daily, 8.9 $ft^3/s$ (0.25 $m^3/s$) Oct. 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 42 | 10 | 26 | 39 | 75 | 719 | 365 | 480 | 411 | 648 | 1680 | 862 |
| 2 | 18 | 9.4 | 52 | 29 | 65 | 1410 | 337 | 400 | 424 | 640 | 1420 | 866 |
| 3 | 14 | 11 | 70 | 26 | 46 | 1230 | 325 | 360 | 435 | 651 | 753 | 866 |
| 4 | 12 | 10 | 72 | 24 | 34 | 517 | 296 | 330 | 433 | 654 | 788 | 871 |
| 5 | 11 | 10 | 72 | 22 | 28 | 229 | 293 | 310 | 455 | 655 | 757 | 922 |
| 6 | 1040 | 11 | 72 | 20 | 27 | 334 | 296 | 300 | 490 | 654 | 733 | 850 |
| 7 | 284 | 14 | 70 | 19 | 53 | 228 | 385 | 300 | 491 | 657 | 703 | 854 |
| 8 | 45 | 16 | 67 | 18 | 58 | 154 | 388 | 300 | 519 | 681 | 526 | 854 |
| 9 | 27 | 14 | 65 | 17 | 49 | 125 | 401 | 300 | 531 | 689 | 695 | 772 |
| 10 | 22 | 12 | 67 | 18 | 56 | 110 | 397 | 310 | 542 | 738 | 726 | 737 |
| 11 | 20 | 12 | 94 | 20 | 2060 | 105 | 390 | 315 | 513 | 746 | 730 | 745 |
| 12 | 20 | 12 | 113 | 20 | 327 | 129 | 353 | 320 | 505 | 763 | 733 | 749 |
| 13 | 20 | 12 | 113 | 19 | 180 | 205 | 341 | 320 | 504 | 817 | 737 | 721 |
| 14 | 20 | 13 | 114 | 19 | 532 | 124 | 435 | 320 | 501 | 844 | 737 | 669 |
| 15 | 19 | 14 | 125 | 683 | 353 | 98 | 446 | 335 | 501 | 878 | 745 | 636 |
| 16 | 18 | 15 | 133 | 353 | 200 | 83 | 450 | 370 | 513 | 880 | 749 | 580 |
| 17 | 18 | 16 | 156 | 143 | 180 | 74 | 453 | 400 | 516 | 880 | 753 | 556 |
| 18 | 17 | 16 | 159 | 121 | 160 | 69 | 453 | 410 | 502 | 878 | 749 | 545 |
| 19 | 17 | 18 | 160 | 61 | 140 | 65 | 468 | 410 | 494 | 904 | 757 | 515 |
| 20 | 17 | 18 | 158 | 82 | 130 | 61 | 493 | 399 | 531 | 966 | 757 | 515 |
| 21 | 16 | 19 | 158 | 79 | 120 | 58 | 506 | 407 | 548 | 876 | 757 | 427 |
| 22 | 16 | 19 | 160 | 48 | 110 | 55 | 508 | 405 | 547 | 1000 | 761 | 408 |
| 23 | 16 | 20 | 160 | 36 | 110 | 211 | 514 | 426 | 575 | 858 | 749 | 379 |
| 24 | 16 | 21 | 159 | 29 | 100 | 256 | 512 | 464 | 596 | 858 | 788 | 331 |
| 25 | 16 | 22 | 159 | 25 | 100 | 253 | 324 | 476 | 617 | 898 | 825 | 325 |
| 26 | 14 | 22 | 160 | 23 | 90 | 250 | 500 | 472 | 628 | 813 | 837 | 258 |
| 27 | 9.2 | 23 | 161 | 21 | 90 | 250 | 480 | 440 | 660 | 840 | 850 | 225 |
| 28 | 8.9 | 24 | 162 | 20 | 180 | 267 | 480 | 421 | 740 | 828 | 862 | 209 |
| 29 | 10 | 25 | 163 | 19 | --- | 342 | 480 | 395 | 657 | 834 | 862 | 209 |
| 30 | 11 | 25 | 123 | 19 | --- | 354 | 480 | 378 | 670 | 840 | 862 | 206 |
| 31 | 11 | --- | 74 | 38 | --- | 334 | --- | 380 | --- | 972 | 866 | --- |
| TOTAL | 1845.1 | 483.4 | 3597 | 2110 | 5653 | 8699 | 12549 | 11653 | 16049 | 24840 | 25247 | 17662 |
| MEAN | 59.5 | 16.1 | 116 | 68.1 | 202 | 281 | 418 | 376 | 535 | 801 | 814 | 589 |
| MAX | 1040 | 25 | 163 | 683 | 2060 | 1410 | 514 | 480 | 740 | 1000 | 1680 | 922 |
| MIN | 8.9 | 9.4 | 26 | 17 | 27 | 55 | 293 | 300 | 411 | 640 | 526 | 206 |
| AC-FT | 3660 | 959 | 7130 | 4190 | 11210 | 17250 | 24890 | 23110 | 31830 | 49270 | 50080 | 35030 |

CAL YR 1977 TOTAL 28878.39 MEAN 79.1 MAX 1040 MIN .03 AC-FT 57280
WTR YR 1978 TOTAL 130387.50 MEAN 357 MAX 2060 MIN 8.9 AC-FT 258600

WATER-QUALITY RECORDS

PERIOD OF RECORD.--January 1976 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | TUR-BID-ITY (JTU) | OXYGEN, DIS-SOLVED (MG/L) | COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 26... | 1530 | 15 | 1650 | 8.1 | 22.0 | 15 | 8.4 | 28 |
| DEC | | | | | | | | |
| 01... | 1300 | 26 | 1550 | 8.0 | 12.0 | 65 | 11.0 | 8 |
| JAN | | | | | | | | |
| 30... | 1500 | 50 | 1560 | 8.2 | 13.0 | -- | 10.6 | 320 |
| MAR | | | | | | | | |
| 02... | 1730 | 1640 | 440 | 8.3 | 12.5 | -- | 10.1 | 2600 |
| JUL | | | | | | | | |
| 18... | 1400 | 879 | 1060 | 8.2 | 18.0 | -- | 8.2 | 79 |

| DATE | STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | BICAR-BONATE (MG/L AS HCO3) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 26... | -- | 370 | 120 | 99 | 30 | 200 | 4.5 | 7.8 | 310 |
| DEC | | | | | | | | | |
| 01... | 29 | 290 | 110 | 80 | 23 | 200 | 5.1 | 7.9 | 230 |
| JAN | | | | | | | | | |
| 30... | -- | 410 | 170 | 110 | 34 | 190 | 4.1 | 8.2 | -- |
| MAR | | | | | | | | | |
| 02... | -- | 210 | 49 | 64 | 12 | 16 | .5 | 3.6 | -- |
| JUL | | | | | | | | | |
| 18... | -- | 210 | 67 | 58 | 15 | 130 | 3.9 | 4.7 | -- |

| DATE | CAR-BONATE (MG/L AS CO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER AC-FT) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 26... | 0 | 140 | 270 | .8 | 24 | 924 | 925 | 1.26 |
| DEC | | | | | | | | |
| 01... | 0 | 130 | 290 | .9 | 22 | 875 | 868 | 1.19 |
| JAN | | | | | | | | |
| 30... | -- | 190 | 260 | .6 | 25 | 933 | 962 | 1.27 |
| MAR | | | | | | | | |
| 02... | -- | 63 | 11 | .5 | 23 | 293 | 299 | .40 |
| JUL | | | | | | | | |
| 18... | -- | 94 | 170 | .8 | 29 | 585 | 586 | .80 |

09470000 GILA RIVER AT WINKELMAN, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) | NITROGEN, AMMONIA TOTAL (MG/L AS N) | NITROGEN, ORGANIC TOTAL (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | NITROGEN, NH4 + ORG. SUSP. TOTAL (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N) | NITROGEN, TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | PHOSPHORUS, DISSOLVED (MG/L AS P) | PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 26... | .09 | .12 | .02 | -- | -- | -- | .08 | -- | .12 | .08 | .01 |
| DEC | | | | | | | | | | | |
| 01... | .01 | .02 | .00 | -- | -- | -- | .28 | -- | .15 | .02 | .01 |
| JAN | | | | | | | | | | | |
| 30... | .24 | -- | .01 | .62 | .63 | .09 | .54 | .87 | .01 | .00 | -- |
| MAR | | | | | | | | | | | |
| 02... | .34 | -- | .10 | 8.1 | 8.2 | 7.9 | .27 | 8.5 | 4.1 | .03 | -- |
| JUL | | | | | | | | | | | |
| 18... | .25 | -- | .00 | .89 | .89 | .47 | .42 | 1.1 | .24 | .14 | -- |

| DATE | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOVERABLE (UG/L AS BA) | BORON, TOTAL RECOVERABLE (UG/L AS B) | BORON, DISSOLVED (UG/L AS B) | CADMIUM TOTAL RECOVERABLE (UG/L AS CD) | CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) | COPPER, TOTAL RECOVERABLE (UG/L AS CU) | IRON, TOTAL RECOVERABLE (UG/L AS FE) | IRON, DISSOLVED (UG/L AS FE) | LEAD, TOTAL RECOVERABLE (UG/L AS PB) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | |
| 26... | 5 | 100 | 240 | 230 | 2 | 10 | 10 | 560 | 40 | 9 |
| DEC | | | | | | | | | | |
| 01... | 5 | 100 | 250 | 210 | 2 | 10 | 24 | 3000 | 20 | 9 |
| JAN | | | | | | | | | | |
| 30... | 4 | 200 | 250 | -- | 0 | 0 | 9 | 540 | -- | 5 |
| MAR | | | | | | | | | | |
| 02... | 8 | 1400 | 200 | -- | 1 | 160 | 1100 | 330000 | -- | 700 |
| JUL | | | | | | | | | | |
| 18... | 5 | 200 | 200 | -- | 1 | 0 | 14 | 2000 | -- | 12 |

| DATE | MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) | MANGANESE, DISSOLVED (UG/L AS MN) | MERCURY TOTAL RECOVERABLE (UG/L AS HG) | SELENIUM, TOTAL (UG/L AS SE) | SILVER, TOTAL RECOVERABLE (UG/L AS AG) | ZINC, TOTAL RECOVERABLE (UG/L AS ZN) | CARBON, ORGANIC TOTAL (MG/L AS C) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS (UG/L) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 26... | 280 | 0 | .4 | 0 | 1 | 20 | -- | .00 | 3 |
| DEC | | | | | | | | | |
| 01... | 220 | 0 | .0 | 0 | 1 | 20 | 5.1 | .00 | 3 |
| JAN | | | | | | | | | |
| 30... | 490 | -- | .0 | 0 | 0 | 10 | 3.5 | .00 | 1 |
| MAR | | | | | | | | | |
| 02... | 11000 | -- | .8 | 1 | 9 | 1100 | 141 | 10 | 2 |
| JUL | | | | | | | | | |
| 18... | 160 | -- | .0 | 0 | 0 | 20 | 8.5 | .00 | 5 |

## 09470500 SAN PEDRO RIVER AT PALOMINAS, AZ

LOCATION.--Lat 31°22'48", long 110°06'38", in SW¼SE¼ sec.33, T.23 S., R.22 E., Cochise County, Hydrologic Unit 15050202, near left bank on downstream side of pier of bridge on State Highway 92, 0.7 mi (1.1 km) east of Palominas, 2.5 mi (4.0 km) upstream from Green Brush Draw, 4.5 mi (7.2 km) downstream from international boundary, and 12 mi (19 km) southwest of Bisbee.

DRAINAGE AREA.--741 $mi^2$ (1,919 $km^2$), of which 649 $mi^2$ (1,681 $km^2$) is in Mexico.

PERIOD OF RECORD.--May 1930 to October 1933, May 1935 to July 1941, July 1950 to current year.

GAGE.--Water-stage recorder. Datum of gage is 4,187.62 ft (1,276.387 m) National Geodetic Vertical Datum of 1929 (State Highway Department bench mark). See WSP 1733 for history of changes prior to Nov. 24, 1955.

REMARKS.--Records fair. Small diversions for irrigation of a few hundred acres above station, mostly in Mexico. Records show approximate flow of river at international boundary.

AVERAGE DISCHARGE.--36 years (water years 1931-33, 1936-40, 1951-78), 31.7 $ft^3/s$ (0.898 $m^3/s$), 22,970 acre-ft/yr (28.3 $hm^3/yr$); median of yearly mean discharges, 23 $ft^3/s$ (0.65 $m^3/s$), 16,700 acre-ft/yr (21 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,000 $ft^3/s$ (623 $m^3/s$) Aug. 14, 1940, gage height, 16.16 ft (4.926 m), present datum, from rating curve extended above 5,600 $ft^3/s$ (160 $m^3/s$) on basis of slope-area measurement of peak flow; no flow at times most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Greatest flood since at least 1906 occurred Sept. 28, 1926, gage height, about 23.9 ft (7.28 m), present datum, from floodmarks; discharge not determined.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 14,500 $ft^3/s$ (411 $m^3/s$) Oct. 9, gage height, 16.04 ft (4.889 m), base discharge, 2,400 $ft^3/s$ (68 $m^3/s$); no flow June 8 to July 14, Sept. 10-22, 24-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 20 | 22 | 11 | 15 | 24 | 33 | 16 | 3.3 | .45 | .00 | 41 | 12 |
| 2 | 15 | 21 | 12 | 14 | 23 | 275 | 14 | 4.4 | .45 | .00 | 74 | 16 |
| 3 | 10 | 18 | 11 | 13 | 21 | 241 | 12 | 3.6 | .30 | .00 | 205 | 9.7 |
| 4 | 5.0 | 17 | 10 | 12 | 20 | 165 | 11 | 4.3 | .60 | .00 | 49 | 10 |
| 5 | 2.0 | 15 | 11 | 11 | 20 | 90 | 10 | 3.9 | .60 | .00 | 25 | 65 |
| 6 | 12 | 14 | 10 | 11 | 25 | 72 | 9.0 | 4.5 | .45 | .00 | 15 | 41 |
| 7 | 8.4 | 16 | 9.5 | 10 | 25 | 102 | 7.4 | 3.2 | .15 | .00 | 9.0 | 16 |
| 8 | 9190 | 16 | 9.5 | 9.5 | 26 | 78 | 7.4 | 3.3 | .00 | .00 | 5.0 | 5.0 |
| 9 | 10300 | 14 | 9.5 | 9.5 | 26 | 63 | 7.0 | 4.2 | .00 | .00 | 5.0 | .50 |
| 10 | 2050 | 11 | 9.5 | 9.7 | 24 | 57 | 7.0 | 4.3 | .00 | .00 | 4.0 | .00 |
| 11 | 634 | 11 | 9.5 | 13 | 27 | 47 | 7.0 | 2.3 | .00 | .00 | 7.0 | .00 |
| 12 | 401 | 11 | 9.5 | 14 | 35 | 47 | 7.0 | 1.2 | .00 | .00 | 34 | .00 |
| 13 | 288 | 11 | 9.5 | 12 | 33 | 88 | 7.0 | 1.3 | .00 | .00 | 7.0 | .00 |
| 14 | 140 | 12 | 9.5 | 10 | 34 | 179 | 7.0 | 1.3 | .00 | .00 | 3.0 | .00 |
| 15 | 75 | 16 | 9.6 | 12 | 38 | 163 | 7.0 | 1.2 | .00 | 33 | 2.0 | .00 |
| 16 | 60 | 16 | 9.6 | 42 | 39 | 110 | 7.0 | 1.2 | .00 | 22 | 2.0 | .00 |
| 17 | 190 | 15 | 9.7 | 26 | 39 | 74 | 7.0 | 1.0 | .00 | 15 | 2.0 | .00 |
| 18 | 65 | 14 | 9.7 | 25 | 35 | 58 | 7.0 | 1.0 | .00 | 9.5 | 1.9 | .00 |
| 19 | 45 | 14 | 9.5 | 24 | 30 | 51 | 7.0 | 1.0 | .00 | 5.6 | 1.9 | .00 |
| 20 | 40 | 14 | 9.5 | 24 | 26 | 45 | 7.0 | 1.4 | .00 | 2.5 | 1.5 | .00 |
| 21 | 35 | 14 | 9.5 | 39 | 24 | 41 | 7.0 | 1.0 | .00 | 1.4 | 1.9 | .00 |
| 22 | 32 | 14 | 10 | 34 | 22 | 36 | 7.0 | 1.0 | .00 | 27 | 1.9 | .00 |
| 23 | 30 | 14 | 11 | 30 | 21 | 34 | 7.0 | .75 | .00 | 42 | 95 | 1.2 |
| 24 | 28 | 14 | 11 | 28 | 21 | 32 | 6.8 | .75 | .00 | 18 | 167 | .00 |
| 25 | 27 | 14 | 11 | 25 | 21 | 30 | 5.5 | .90 | .00 | 19 | 30 | .00 |
| 26 | 26 | 13 | 12 | 26 | 21 | 28 | 4.0 | 1.2 | .00 | 57 | 11 | .00 |
| 27 | 25 | 14 | 13 | 25 | 20 | 26 | 4.2 | .60 | .00 | 66 | 11 | .00 |
| 28 | 25 | 14 | 14 | 24 | 21 | 24 | 3.4 | .60 | .00 | 23 | 11 | .00 |
| 29 | 25 | 12 | 17 | 23 | --- | 22 | 3.1 | .60 | .00 | 14 | 38 | .00 |
| 30 | 25 | 14 | 18 | 22 | --- | 20 | 3.1 | .60 | .00 | 21 | 21 | .00 |
| 31 | 30 | --- | 16 | 23 | --- | 18 | --- | .45 | --- | 109 | 15 | --- |
| TOTAL | 23858.4 | 435 | 341.1 | 615.7 | 741 | 2349 | 221.9 | 60.35 | 3.00 | 485.00 | 897.1 | 176.40 |
| MEAN | 770 | 14.5 | 11.0 | 19.9 | 26.5 | 75.8 | 7.40 | 1.95 | .10 | 15.6 | 28.9 | 5.88 |
| MAX | 10300 | 22 | 18 | 42 | 39 | 275 | 16 | 4.5 | .60 | 109 | 205 | 65 |
| MIN | 2.0 | 11 | 9.5 | 9.5 | 20 | 18 | 3.1 | .45 | .00 | .00 | 1.5 | .00 |
| AC-FT | 47320 | 863 | 677 | 1220 | 1470 | 4660 | 440 | 120 | 6.0 | 962 | 1780 | 350 |

CAL YR 1977 TOTAL 31655.70 MEAN 86.7 MAX 10300 MIN .00 AC-FT 62790
WTR YR 1978 TOTAL 30183.95 MEAN 82.7 MAX 10300 MIN .00 AC-FT 59870

## 09471000 SAN PEDRO RIVER AT CHARLESTON, AZ

LOCATION.--Lat 31°37'33", long 110°10'26", in NE¼NE¼ sec.11, T.21 S., R.21 E., Cochise County, Hydrologic Unit 15050202, in Spanish land grant of San Juan de las Boquillas y Nogales, at downstream side of pier near center of highway bridge, 0.3 mi (0.5 km) south of Charleston, 1.5 mi (2.4 km) upstream from Charleston damsite, and 9 mi (14 km) upstream from Babocomari River.

DRAINAGE AREA.--1,219 $mi^2$ (3,157 $km^2$), of which 696 $mi^2$ (1,803 $km^2$) is in Mexico.

PERIOD OF RECORD.--January and February 1904 (gage heights only); March 1904 to August 1906; November 1910 to December 1911 (gage heights only); September 1912 to current year. Monthly discharge only October 1926 to May 1928 and December 1933 to April 1935, published in WSP 1313. Published as "near Lewis Springs" 1910-11, and as "near Fairbank" 1911-26.

REVISED RECORDS.--WSP 1119: 1939(M). WSP 1213: 1914, 1916(M), 1918(M), 1919, 1920(M), 1922-23(M). WSP 1283: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 3,954.01 ft (1,205.182 m) National Geodetic Vertical Datum of 1929. Prior to Dec. 1, 1942, nonrecording gage or water-stage recorder at various sites within 6.5 mi (10.5 km) downstream at different datums.

REMARKS.--Records good. Diversions above station, mostly by pumping from ground water, for irrigation of 2,900 acres (11.7 $km^2$)—in 1974—excluding an unknown amount in Mexico. Record shows flow available at Charleston damsite.

AVERAGE DISCHARGE.--67 years (water years 1905, 1913-78), 60.1 $ft^3/s$ (1.702 $m^3/s$), 43,540 acre-ft/yr (53.7 $hm^3/yr$); median of yearly mean discharges, 50 $ft^3/s$ (1.42 $m^3/s$), 36,200 acre-ft/yr (45 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 98,000 $ft^3/s$ (2,780 $m^3/s$) Sept. 28, 1926, gage height, 21.9 ft (6.68 m), site and datum then in use, by slope-area measurement of peak flow; minimum since 1928, 0.40 $ft^3/s$ (0.011 $m^3/s$) June 7, 1974.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*), (from rating curve extended above 7,600 $ft^3/s$ or 220 $m^3/s$) and peak discharges above base of 3,000 $ft^3/s$ (85 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|
| Oct. 6 | 1930 | 3,980 | 113 | 6.23 | 1.899 |
| Oct. 9 | 1400 | *23,700 | 671 | 10.60 | 3.231 |

Minimum, 2.2 $ft^3/s$ (0.062 $m^3/s$) July 6, gage height, 1.92 ft (0.585 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 18 | 47 | 20 | 31 | 28 | 77 | 32 | 12 | 6.4 | 3.0 | 78 | 8.0 |
| 2 | 15 | 44 | 24 | 31 | 28 | 263 | 31 | 12 | 6.1 | 2.8 | 42 | 6.7 |
| 3 | 13 | 42 | 28 | 31 | 28 | 246 | 31 | 12 | 6.1 | 2.6 | 253 | 6.1 |
| 4 | 12 | 41 | 28 | 28 | 28 | 161 | 26 | 12 | 6.1 | 2.6 | 120 | 5.8 |
| 5 | 63 | 40 | 16 | 24 | 26 | 125 | 23 | 12 | 6.1 | 2.6 | 36 | 26 |
| 6 | 434 | 38 | 28 | 26 | 31 | 100 | 23 | 12 | 5.5 | 2.4 | 17 | 36 |
| 7 | 137 | 38 | 23 | 24 | 38 | 108 | 23 | 12 | 5.5 | 2.6 | 11 | 38 |
| 8 | 5870 | 40 | 23 | 24 | 34 | 102 | 23 | 12 | 5.5 | 2.6 | 9.0 | 18 |
| 9 | 18400 | 36 | 23 | 23 | 35 | 95 | 23 | 12 | 5.5 | 3.0 | 14 | 11 |
| 10 | 5670 | 35 | 23 | 24 | 32 | 78 | 26 | 11 | 5.5 | 3.0 | 8.0 | 7.0 |
| 11 | 838 | 35 | 23 | 26 | 34 | 68 | 31 | 11 | 4.9 | 3.0 | 7.0 | 6.7 |
| 12 | 414 | 34 | 23 | 28 | 41 | 62 | 23 | 10 | 4.9 | 3.0 | 8.0 | 5.8 |
| 13 | 262 | 34 | 23 | 29 | 54 | 76 | 22 | 12 | 4.6 | 18 | 13 | 4.9 |
| 14 | 192 | 32 | 19 | 26 | 58 | 128 | 18 | 11 | 4.6 | 22 | 8.0 | 4.9 |
| 15 | 147 | 32 | 34 | 26 | 58 | 144 | 22 | 10 | 4.6 | 6.4 | 7.0 | 4.9 |
| 16 | 120 | 32 | 22 | 35 | 60 | 122 | 28 | 9.5 | 4.0 | 6.4 | 5.2 | 4.3 |
| 17 | 138 | 29 | 22 | 56 | 62 | 100 | 31 | 9.5 | 4.0 | 7.5 | 4.3 | 4.0 |
| 18 | 125 | 29 | 22 | 41 | 60 | 82 | 32 | 8.5 | 3.8 | 6.1 | 3.8 | 3.6 |
| 19 | 100 | 29 | 22 | 35 | 52 | 76 | 23 | 9.0 | 3.8 | 5.5 | 7.5 | 3.2 |
| 20 | 86 | 29 | 22 | 34 | 47 | 66 | 31 | 9.0 | 3.4 | 5.2 | 7.0 | 3.2 |
| 21 | 80 | 29 | 22 | 38 | 42 | 60 | 28 | 9.5 | 3.4 | 18 | 9.5 | 3.6 |
| 22 | 72 | 29 | 22 | 54 | 40 | 56 | 17 | 8.5 | 3.4 | 40 | 10 | 3.6 |
| 23 | 66 | 29 | 23 | 47 | 35 | 52 | 18 | 7.5 | 3.4 | 19 | 6.4 | 3.6 |
| 24 | 60 | 28 | 26 | 42 | 31 | 50 | 14 | 8.0 | 3.2 | 18 | 176 | 3.6 |
| 25 | 58 | 28 | 26 | 40 | 29 | 50 | 14 | 8.0 | 3.2 | 14 | 46 | 3.8 |
| 26 | 50 | 28 | 29 | 34 | 29 | 47 | 13 | 8.0 | 3.0 | 9.5 | 38 | 5.8 |
| 27 | 48 | 26 | 29 | 32 | 31 | 42 | 14 | 8.0 | 3.2 | 141 | 8.5 | 4.9 |
| 28 | 47 | 26 | 29 | 29 | 35 | 41 | 14 | 7.0 | 3.6 | 23 | 150 | 4.3 |
| 29 | 47 | 18 | 26 | 28 | --- | 38 | 13 | 7.0 | 3.6 | 9.0 | 31 | 4.6 |
| 30 | 48 | 30 | 29 | 26 | --- | 36 | 12 | 7.0 | 3.4 | 5.8 | 31 | 4.9 |
| 31 | 64 | --- | 31 | 28 | --- | 35 | --- | 6.7 | --- | 118 | 13 | --- |
| TOTAL | 33694 | 987 | 760 | 1000 | 1106 | 2786 | 679 | 303.7 | 134.3 | 525.6 | 1178.2 | 250.8 |
| MEAN | 1087 | 32.9 | 24.5 | 32.3 | 39.5 | 89.9 | 22.6 | 9.80 | 4.48 | 17.0 | 38.0 | 8.36 |
| MAX | 18400 | 47 | 34 | 56 | 62 | 263 | 32 | 12 | 6.4 | 141 | 253 | 38 |
| MIN | 12 | 18 | 16 | 23 | 26 | 35 | 12 | 6.7 | 3.0 | 2.4 | 3.8 | 3.2 |
| AC-FT | 66830 | 1960 | 1510 | 1980 | 2190 | 5530 | 1350 | 602 | 266 | 1040 | 2340 | 497 |

CAL YR 1977 TOTAL 47053.4 MEAN 129 MAX 18400 MIN 1.8 AC-FT 93330
WTR YR 1978 TOTAL 43404.6 MEAN 119 MAX 18400 MIN 2.4 AC-FT 86090

## 09471550 SAN PEDRO RIVER NEAR TOMBSTONE, AZ

LOCATION.--Lat 31°45'03", long 110°12'02", in SE¼ sec.28, T.19 S., R.21 E. (unsurveyed), Cochise County, Hydrologic Unit 15050202, in Spanish land grant of San Juan de las Boquillas y Nogales, on right bank 0.5 mi (0.8 km) downstream from Willow Wash, 2.6 mi (4.2 km) north of Fairbank, and 8 mi (13 km) northwest of Tombstone.

DRAINAGE AREA.--1,740 $mi^2$ (4,510 $km^2$) approximately, of which 696 $mi^2$ (1,800 $km^2$) is in Mexico.

PERIOD OF RECORD.--April 1967 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 3,780 ft (1,152 m), from topographic map.

REMARKS.--Records fair. Diversions above station, mostly by pumping from ground water, for irrigation of 2,900 acres (11.7 $km^2$)—in 1974—excluding an unknown amount in Mexico.

AVERAGE DISCHARGE.--11 years, 47.0 $ft^3/s$ (1.331 $m^3/s$), 34,050 acre-ft/yr (42.0 $hm^3/yr$); median of yearly mean discharges, 41 $ft^3/s$ (1.16 $m^3/s$), 29,700 acre-ft per year (37 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,200 $ft^3/s$ (685 $m^3/s$) Oct. 9, 1977, gage height, 11.40 ft (3.475 m), from rating curve extended above 4,900 $ft^3/s$ (140 $m^3/s$) on basis of slope-area measurements at gage heights 8.89 ft (2.710 m) and 11.40 ft (3.475 m); no flow at times during each summer.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*) and peak discharges above base of 3,000 $ft^3/s$ (85 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|
| Oct. 6 | 2200 | 3,730 | 106 | 6.12 | 1.865 |
| Oct. 9 | 1530 | *24,200 | 685 | 11.40 | 3.475 |

No flow at times during summer.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 20 | 50 | 25 | 33 | 35 | 42 | 31 | 11 | 4.1 | .00 | 205 | 5.0 |
| 2 | 15 | 40 | 27 | 35 | 34 | 246 | 31 | 13 | 3.6 | .00 | 38 | 4.0 |
| 3 | 13 | 38 | 27 | 38 | 34 | 349 | 29 | 12 | 3.3 | .00 | 273 | 3.5 |
| 4 | 11 | 36 | 27 | 34 | 35 | 207 | 27 | 11 | 3.1 | .00 | 132 | 3.0 |
| 5 | 60 | 35 | 26 | 31 | 33 | 128 | 28 | 11 | 2.6 | .00 | 25 | 36 |
| 6 | 430 | 35 | 24 | 33 | 31 | 99 | 25 | 12 | 2.8 | .00 | 10 | 8.0 |
| 7 | 338 | 36 | 28 | 32 | 36 | 93 | 24 | 12 | 2.9 | .00 | 9.0 | 6.0 |
| 8 | 5420 | 34 | 25 | 31 | 35 | 102 | 23 | 11 | 2.7 | .00 | 8.0 | 5.0 |
| 9 | 17100 | 32 | 23 | 28 | 31 | 85 | 25 | 10 | 2.5 | .00 | 7.0 | 4.0 |
| 10 | 4700 | 32 | 26 | 31 | 34 | 71 | 21 | 10 | 2.3 | .00 | 6.0 | 3.0 |
| 11 | 810 | 33 | 27 | 32 | 34 | 61 | 19 | 11 | 2.3 | .00 | 6.0 | 2.8 |
| 12 | 392 | 30 | 24 | 32 | 34 | 56 | 19 | 9.2 | 2.3 | .00 | 6.0 | 2.2 |
| 13 | 246 | 28 | 25 | 32 | 38 | 67 | 18 | 9.2 | 2.3 | .00 | 6.0 | 1.9 |
| 14 | 166 | 31 | 25 | 32 | 49 | 113 | 18 | 9.4 | 2.0 | 24 | 6.0 | 1.5 |
| 15 | 117 | 29 | 29 | 34 | 45 | 192 | 18 | 8.8 | 1.9 | 4.3 | 5.0 | 1.0 |
| 16 | 96 | 29 | 25 | 35 | 47 | 156 | 17 | 9.8 | 1.8 | 3.0 | 4.0 | .44 |
| 17 | 106 | 27 | 24 | 53 | 50 | 107 | 16 | 8.2 | 1.7 | 32 | 3.0 | .00 |
| 18 | 136 | 27 | 25 | 46 | 54 | 86 | 16 | 7.5 | 1.5 | 2.3 | 2.0 | .00 |
| 19 | 91 | 25 | 23 | 42 | 46 | 72 | 16 | 7.8 | 1.1 | 1.8 | 2.0 | .00 |
| 20 | 80 | 26 | 22 | 45 | 45 | 57 | 15 | 7.6 | .60 | 1.4 | 3.0 | .00 |
| 21 | 62 | 26 | 24 | 42 | 41 | 59 | 16 | 6.5 | .00 | 1.0 | 4.0 | .00 |
| 22 | 62 | 25 | 26 | 53 | 37 | 57 | 14 | 6.7 | .00 | 32 | 5.0 | 1.2 |
| 23 | 59 | 26 | 22 | 58 | 36 | 55 | 14 | 6.3 | .00 | 37 | 6.0 | .54 |
| 24 | 52 | 26 | 21 | 52 | 33 | 51 | 12 | 5.9 | .00 | 16 | 153 | .00 |
| 25 | 50 | 24 | 23 | 46 | 30 | 46 | 14 | 5.8 | .00 | 40 | 70 | .03 |
| 26 | 48 | 24 | 26 | 43 | 31 | 43 | 14 | 6.0 | .00 | 12 | 35 | .00 |
| 27 | 50 | 26 | 31 | 41 | 30 | 40 | 13 | 5.8 | .00 | 89 | 11 | .00 |
| 28 | 47 | 28 | 34 | 38 | 31 | 36 | 13 | 5.9 | .00 | 31 | 166 | .00 |
| 29 | 47 | 28 | 35 | 38 | --- | 39 | 11 | 5.7 | .60 | 23 | 47 | .00 |
| 30 | 45 | 24 | 33 | 35 | --- | 35 | 11 | 4.5 | .50 | 22 | 7.4 | .00 |
| 31 | 55 | --- | 34 | 35 | --- | 34 | --- | 5.0 | --- | 47 | 6.8 | --- |
| TOTAL | 30924 | 910 | 816 | 1190 | 1049 | 2884 | 568 | 265.6 | 48.50 | 418.80 | 1267.2 | 89.11 |
| MEAN | 998 | 30.3 | 26.3 | 38.4 | 37.5 | 93.0 | 18.9 | 8.57 | 1.62 | 13.5 | 40.9 | 2.97 |
| MAX | 17100 | 50 | 35 | 58 | 54 | 349 | 31 | 13 | 4.1 | 89 | 273 | 36 |
| MIN | 11 | 24 | 21 | 28 | 30 | 34 | 11 | 4.5 | .00 | .00 | 2.0 | .00 |
| AC-FT | 61340 | 1800 | 1620 | 2360 | 2080 | 5720 | 1130 | 527 | 96 | 831 | 2510 | 177 |

CAL YR 1977 TOTAL 45258.25 MEAN 124 MAX 17100 MIN .00 AC-FT 89770
WTR YR 1978 TOTAL 40430.21 MEAN 111 MAX 17100 MIN .00 AC-FT 80190

## 09472000 SAN PEDRO RIVER NEAR REDINGTON, AZ

LOCATION.--Lat 32°22'50", long 110°26'45", in NE¼NW¼ sec.19, T.12 S., R.19 E., Cochise County, Hydrologic Unit 15050203, on left bank, 0.3 mi (0.5 km) upstream from Cochise-Pima County line, 4.3 mi (6.9 km) southeast of Redington, and 30 mi (48 km) north of Benson.

DRAINAGE AREA.--2,939 $mi^2$ (7,612 $km^2$), of which 696 $mi^2$ (1,803 $km^2$) is in Mexico.

PERIOD OF RECORD.--June 1943 to June 1947, July 1950 to current year (monthly discharge only, July 1954 to March 1955). Also extremes for water years 1948-50, published in WSP 1179.

REVISED RECORDS.--WSP 1283: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,930.04 ft (893.076 m) National Geodetic Vertical Datum of 1929. June 1943 to June 1947, and Oct. 1, 1962, to June 27, 1963, at present site at datum 7.49 ft (2.283 m) higher. July 1950 to Sept. 30, 1962, at site 400 ft (120 m) upstream at datum 10.47 ft (3.191 m) higher. Supplementary water-stage recorder 50 ft upstream at same datum since June 29, 1977.

REMARKS.--Records poor. Diversions above station for irrigation of about 11,000 acres (44.5 $km^2$) in 1974, excluding an unknown amount in Mexico. Diversion above gage into formerly used ditch on right bank was placed in operation in January 1972; diversion was observed Dec. 3, Jan. 5, Feb. 8, Apr. 3, May 5, and June 7.

AVERAGE DISCHARGE.--31 years (water years 1944-46, 1951-78), 44.2 $ft^3/s$ (1.252 $m^3/s$), 32,020 acre-ft/yr (39.5 $hm^3/yr$); median of yearly discharges, 31 $ft^3/s$ (0.88 $m^3/s$), 22,500 acre-ft/yr (28 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 28,600 $ft^3/s$ (810 $m^3/s$) Aug. 2, 1951, gage height, 20.2 ft (6.16 m), present site and datum, from rating curve extended above 16,000 $ft^3/s$ (450 $m^3/s$) on basis of slope-area measurement of peak flow; no flow at times in most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge since at least 1906, about 90,000 $ft^3/s$ (2,550 $m^3/s$) Sept. 28, 1926, gage height, 29.0 ft (8.84 m), present site and datum, from floodmark, computed on basis of peak discharge of same flood for station at Charleston and for Gila River at Kelvin.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 23,000 $ft^3/s$ (651 $m^3/s$) Oct. 10, gage height, 21.40 ft (6.523 m), from slope-area measurement of peak flow, base discharge, 3,000 $ft^3/s$ (85 $m^3/s$); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 3.0 | 10 | .00 | .00 | 20 | 15 | 20 | .00 | .00 | .00 | 5.1 | 4.1 |
| 2 | 2.0 | 10 | .00 | .00 | 20 | 538 | 20 | .00 | .00 | .00 | 92 | 4.5 |
| 3 | 2.0 | 10 | .00 | .00 | 20 | 774 | 19 | .00 | .00 | .00 | 44 | 5.5 |
| 4 | 1.0 | 10 | .00 | .00 | 20 | 479 | 19 | .00 | .00 | .00 | 166 | 3.2 |
| 5 | 1.0 | 10 | .00 | .00 | 20 | 380 | 19 | .00 | .00 | .00 | 45 | 7.2 |
| 6 | 52 | 10 | .00 | .00 | 20 | 200 | 19 | .00 | .00 | .00 | 15 | 2.7 |
| 7 | 399 | 9.0 | .00 | .00 | 20 | 150 | 15 | .00 | .00 | .00 | 6.4 | 1.7 |
| 8 | 665 | 9.0 | .00 | .00 | 17 | 80 | 15 | .00 | .00 | .00 | 4.0 | 1.4 |
| 9 | 9200 | 9.0 | .00 | .00 | 20 | 60 | 15 | .00 | .00 | .00 | 4.1 | 1.2 |
| 10 | 15000 | 4.0 | .00 | .00 | 19 | 50 | 15 | .00 | .00 | .00 | 3.5 | .80 |
| 11 | 1400 | .00 | .00 | .00 | 401 | 50 | 15 | .00 | .00 | 130 | 4.6 | .80 |
| 12 | 700 | .00 | .00 | .00 | 400 | 40 | 15 | .00 | .00 | 51 | 168 | .90 |
| 13 | 592 | .00 | .00 | .00 | 200 | 40 | 10 | .00 | .00 | 10 | 16 | .70 |
| 14 | 450 | .00 | .00 | 1.0 | 100 | 30 | 10 | .00 | .00 | 11 | 4.6 | .60 |
| 15 | 250 | .00 | .00 | 118 | 50 | 30 | 10 | .00 | .00 | 9.2 | 4.0 | 14 |
| 16 | 100 | .00 | .00 | 464 | 25 | 30 | 5.0 | .00 | .00 | 11 | 4.0 | 1.7 |
| 17 | 50 | .00 | .00 | 360 | 25 | 30 | .00 | .00 | .00 | 12 | 3.1 | 1.1 |
| 18 | 30 | .00 | .00 | 150 | 20 | 30 | .00 | .00 | .00 | 9.0 | 2.5 | .70 |
| 19 | 30 | .00 | .00 | 75 | 20 | 25 | .00 | .00 | .00 | 6.6 | 70 | .50 |
| 20 | 20 | .00 | .00 | 50 | 20 | 25 | .00 | .00 | .00 | 5.9 | 13 | .40 |
| 21 | 20 | .00 | .00 | 30 | 20 | 25 | .00 | .00 | .00 | 5.0 | 4.9 | .30 |
| 22 | 20 | .00 | .00 | 25 | 20 | 25 | .00 | .00 | .00 | 6.4 | 3.7 | 289 |
| 23 | 15 | .00 | .00 | 25 | 15 | 25 | .00 | .00 | .00 | 5.8 | 2.6 | 8.0 |
| 24 | 15 | .00 | .00 | 20 | 15 | 25 | .00 | .00 | .00 | 14 | 10 | 1.9 |
| 25 | 15 | .00 | .00 | 20 | 15 | 20 | .00 | .00 | .00 | 13 | 10 | 1.4 |
| 26 | 15 | .00 | .00 | 20 | 15 | 20 | .00 | .00 | .00 | 7.1 | 6.6 | 1.1 |
| 27 | 10 | .00 | .00 | 20 | 15 | 20 | .00 | .00 | .00 | 36 | 8.4 | .90 |
| 28 | 10 | .00 | .00 | 20 | 15 | 20 | .00 | .00 | .00 | 6.4 | 4.9 | .60 |
| 29 | 10 | .00 | .00 | 20 | --- | 20 | .00 | .00 | .00 | 4.9 | 15 | .70 |
| 30 | 10 | .00 | .00 | 20 | --- | 20 | .00 | .00 | .00 | 42 | 45 | .70 |
| 31 | 10 | --- | .00 | 20 | --- | 20 | --- | .00 | --- | 25 | 7.5 | --- |
| TOTAL | 29097.0 | 91.00 | .00 | 1458.00 | 1587 | 3296 | 241.00 | .00 | .00 | 421.30 | 793.5 | 358.30 |
| MEAN | 939 | 3.03 | .000 | 47.0 | 56.7 | 106 | 8.03 | .000 | .000 | 13.6 | 25.6 | 11.9 |
| MAX | 15000 | 10 | .00 | 464 | 401 | 774 | 20 | .00 | .00 | 130 | 168 | 289 |
| MIN | 1.0 | .00 | .00 | .00 | 15 | 15 | .00 | .00 | .00 | .00 | 2.5 | .30 |
| AC-FT | 57710 | 180 | .00 | 2890 | 3150 | 6540 | 478 | .00 | .00 | 836 | 1570 | 711 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1977 | TOTAL | 34029.10 | MEAN | 93.2 | MAX | 15000 | MIN | .00 | AC-FT | 67500 |
| WTR YR 1978 | TOTAL | 37343.10 | MEAN | 102 | MAX | 15000 | MIN | .00 | AC-FT | 74070 |

## 09473000 ARAVAIPA CREEK NEAR MAMMOTH, AZ

LOCATION.--Lat 32°50'37", long 110°37'07", in NW¼NW¼ sec.9, T.7 S., R.17 E., Pinal County, Hydrologic Unit 15050203, on right bank 6 mi (10 km) upstream from mouth and 9 mi (14 km) north of Mammoth.

DRAINAGE AREA.--541 $mi^2$ (1,401 $km^2$).

PERIOD OF RECORD.--May 1931 to December 1942 (published as "near Feldman"), May 1966 to current year. Monthly discharge only July 1941 to December 1942, published in WSP 1313.

REVISED RECORDS.--WRD Ariz. 1968: 1967.

GAGE.--Water-stage recorder. Altitude of gage is 2,350 ft (716 m), from topographic map. May 1931 to December 1942 at site 0.3 mi (0.5 km) downstream at different datum.

REMARKS.--Records fair except those above 100 $ft^3/s$ (2.8 $m^3/s$), which are poor. Diversions for irrigation of several hundred acres above station.

AVERAGE DISCHARGE.--23 years, 27.2 $ft^3/s$ (0.770 $m^3/s$), 19,710 acre-ft/yr (24.3 $hm^3/yr$); median of yearly mean discharges, 20 $ft^3/s$ (0.57 $m^3/s$), 14,500 acre-ft/yr (18 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge since at least 1931, 10,500 $ft^3/s$ (297 $m^3/s$) Dec. 19, 1967, gage height, 11.86 ft (3.615 m), in gage well, 14.25 ft (4.343 m), from profile past gage, from rating curve extended above 430 $ft^3/s$ (12 $m^3/s$) on basis of slope-area measurement at gage height 12.5 ft (3.81 m), from profile past gage; minimum, 0.3 $ft^3/s$ (0.008 $m^3/s$) Aug. 30, 1940.

EXTREMES OUTSIDE PERIOD OF RECORD.--A discharge of 20,000 $ft^3/s$ (566 $m^3/s$) occurred Aug. 2, 1919, at site of former gaging station 6 mi (10 km) downstream, operated April 1919 to September 1921, gage height, 6.3 ft (1.92 m), from floodmark, site and datum then in use, from rating curve extended above 5,100 $ft^3/s$ (140 $m^3/s$) on basis of velocity-area study.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*) and peak discharges above base of 2,500 $ft^3/s$ (71 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|
| Mar. 2 | 2230 | 3,400 | 96.3 | a5.5 | 1.68 |
| Aug. 1 | 0415 | *5,100 | 144 | a6.4 | 1.95 |

Minimum daily, 1.2 $ft^3/s$ (0.034 $m^3/s$) Oct. 4.
a From high-water mark in gage well.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5.7 | 2.3 | 8.4 | 10 | 50 | 910 | 32 | 17 | 7.2 | 9.5 | 199 | 10 |
| 2 | 5.0 | 2.2 | 8.0 | 9.8 | 20 | 1660 | 25 | 28 | 6.6 | 6.9 | 194 | 10 |
| 3 | 4.7 | 2.3 | 8.3 | 9.5 | 10 | 1470 | 24 | 25 | 6.0 | 6.4 | 53 | 17 |
| 4 | 1.2 | 3.7 | 8.4 | 9.1 | 10 | 328 | 19 | 19 | 5.6 | 6.5 | 91 | 16 |
| 5 | 6.8 | 3.6 | 8.5 | 8.6 | 10 | 278 | 14 | 18 | 5.3 | 6.6 | 75 | 118 |
| 6 | 37 | 55 | 8.7 | 8.2 | 15 | 435 | 11 | 27 | 5.1 | 6.7 | 42 | 18 |
| 7 | 52 | 21 | 8.4 | 8.4 | 50 | 287 | 10 | 24 | 4.8 | 7.8 | 38 | 16 |
| 8 | 14 | 14 | 8.7 | 7.5 | 20 | 171 | 12 | 19 | 4.8 | 7.8 | 35 | 15 |
| 9 | 17 | 12 | 8.8 | 7.4 | 15 | 136 | 14 | 18 | 4.9 | 7.1 | 133 | 13 |
| 10 | 11 | 12 | 8.3 | 8.0 | 15 | 122 | 15 | 13 | 5.2 | 8.0 | 26 | 12 |
| 11 | 9.6 | 11 | 7.8 | 11 | 100 | 115 | 12 | 12 | 5.1 | 13 | 14 | 11 |
| 12 | 8.4 | 12 | 8.3 | 9.5 | 60 | 116 | 12 | 15 | 5.4 | 15 | 13 | 10 |
| 13 | 7.7 | 11 | 8.4 | 8.6 | 100 | 178 | 11 | 12 | 8.4 | 14 | 11 | 8.7 |
| 14 | 7.7 | 11 | 8.2 | 8.2 | 275 | 120 | 12 | 8.4 | 7.6 | 13 | 11 | 11 |
| 15 | 6.3 | 10 | 8.6 | 440 | 236 | 85 | 17 | 6.8 | 6.8 | 7.2 | 11 | 11 |
| 16 | 4.5 | 8.6 | 8.7 | 375 | 215 | 65 | 17 | 5.3 | 6.5 | 5.6 | 11 | 11 |
| 17 | 5.8 | 9.1 | 8.9 | 100 | 143 | 55 | 13 | 5.0 | 6.8 | 18 | 11 | 6.9 |
| 18 | 5.4 | 9.2 | 8.8 | 30 | 120 | 51 | 11 | 4.7 | 7.1 | 25 | 11 | 7.9 |
| 19 | 5.7 | 9.6 | 8.8 | 20 | 80 | 46 | 13 | 4.7 | 7.5 | 13 | 14 | 8.1 |
| 20 | 5.5 | 9.4 | 8.7 | 15 | 72 | 42 | 13 | 4.8 | 7.9 | 7.6 | 27 | 5.8 |
| 21 | 4.9 | 9.5 | 8.8 | 10 | 49 | 40 | 11 | 9.7 | 8.0 | 6.0 | 18 | 6.0 |
| 22 | 4.1 | 10 | 8.8 | 10 | 37 | 39 | 9.0 | 13 | 8.5 | 71 | 17 | 5.5 |
| 23 | 4.3 | 9.5 | 8.8 | 10 | 33 | 38 | 16 | 9.3 | 8.9 | 76 | 14 | 4.2 |
| 24 | 4.0 | 8.8 | 8.7 | 10 | 30 | 34 | 17 | 7.0 | 9.5 | 18 | 14 | 3.7 |
| 25 | 5.4 | 8.0 | 8.9 | 10 | 28 | 32 | 12 | 9.1 | 9.5 | 30 | 13 | 4.6 |
| 26 | 4.6 | 7.8 | 8.9 | 10 | 27 | 31 | 15 | 14 | 9.8 | 14 | 12 | 4.5 |
| 27 | 2.4 | 7.9 | 9.9 | 10 | 50 | 30 | 16 | 14 | 78 | 11 | 10 | 4.8 |
| 28 | 2.1 | 8.1 | 25 | 10 | 300 | 29 | 17 | 13 | 67 | 8.7 | 10 | 7.1 |
| 29 | 3.0 | 8.1 | 39 | 10 | --- | 29 | 16 | 13 | 23 | 8.1 | 10 | 7.9 |
| 30 | 5.6 | 8.3 | 17 | 10 | --- | 29 | 16 | 12 | 17 | 52 | 10 | 9.2 |
| 31 | 2.8 | --- | 12 | 20 | --- | 27 | --- | 10 | --- | 31 | 10 | --- |
| TOTAL | 264.2 | 315.0 | 325.5 | 1223.8 | 2170 | 7028 | 452.0 | 410.8 | 363.8 | 530.5 | 1158 | 393.9 |
| MEAN | 8.52 | 10.5 | 10.5 | 39.5 | 77.5 | 227 | 15.1 | 13.3 | 12.1 | 17.1 | 37.4 | 13.1 |
| MAX | 52 | 55 | 39 | 440 | 300 | 1660 | 32 | 28 | 78 | 76 | 199 | 118 |
| MIN | 1.2 | 2.2 | 7.8 | 7.4 | 10 | 27 | 9.0 | 4.7 | 4.8 | 5.6 | 10 | 3.7 |
| AC-FT | 524 | 625 | 646 | 2430 | 4300 | 13940 | 897 | 815 | 722 | 1050 | 2300 | 781 |

CAL YR 1977 TOTAL 3758.84 MEAN 10.3 MAX 153 MIN .94 AC-FT 7460
WTR YR 1978 TOTAL 14635.50 MEAN 40.1 MAX 1660 MIN 1.2 AC-FT 29030

## 09473500 SAN PEDRO RIVER AT WINKELMAN, AZ
(National stream-quality accounting network station)

LOCATION.--Lat 32°58'38", long 110°46'11", in SE¼SW¼ sec.24, T.5 S., R.15 E., Pinal County, Hydrologic Unit 15050203, on right bank 0.7 mi (1.1 km) south of Winkelman, and 1.0 mi (1.6 km) upstream from mouth.

DRAINAGE AREA.--4,471 $mi^2$ (11,580 $km^2$); of which 696 $mi^2$ (1,803 $km^2$) is in Mexico.

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May to August 1890 (monthly discharge only), January 1966 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,925 ft (587 m), from topographic map. Apr. 8 to Aug. 31, 1890, nonrecording gage at site about 1,000 ft (300 m) upstream at different datum. Jan. 1, 1966, to Sept. 30, 1968, water-stage recorder at present site at datum 0.27 ft (0.082 m) lower.

REMARKS.--Records poor. Diversions above station, mostly by pumping from ground water, for municipal and industrial use, and for irrigation of about 13,300 acres (53.8 $km^2$) in 1974, excluding an unknown amount in Mexico.

AVERAGE DISCHARGE.--12 years, 44.1 $ft^3/s$ (1.249 $m^3/s$), 31,950 acre-ft/yr (39.4 $hm^3/yr$); median of yearly mean discharges, 35 $ft^3/s$ (0.99 $m^3/s$) 25,400 acre-ft/yr (31 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,000 $ft^3/s$ (453 $m^3/s$) Oct. 10, 1977, gage height, 14.0 ft (4.267 m); no flow at times each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Dec. 22-23, 1965, reached a stage of 12.2 ft (3.72 m), from floodmarks, present site, datum used Jan. 1, 1966, to Sept. 30, 1968—discharge, 16,800 $ft^3/s$ (476 $m^3/s$) at site 3.5 mi (5.6 km) upstream—by slope-area measurement of peak flow.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*) and peak discharges above base of 4,000 $ft^3/s$ (110 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|
| Oct. 10 | 1800 | *16,000 | 453 | 14.0 | 4.267 |
| Mar. 3 | 1100 | 8,670 | 246 | 12.09 | 3.685 |

No flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .50 | 8.0 | 2.0 | 2.0 | 20 | 540 | 13 | 3.4 | .00 | .00 | 175 | 11 |
| 2 | .20 | 8.0 | 2.0 | 2.0 | 20 | 4550 | 11 | 9.2 | .00 | .00 | 198 | 9.2 |
| 3 | .00 | 8.0 | 2.0 | 2.0 | 20 | 4870 | 11 | 3.4 | .00 | .00 | 21 | 9.4 |
| 4 | .00 | 8.0 | 2.0 | 2.0 | 20 | 1270 | 9.9 | 3.8 | .00 | .00 | 36 | 11 |
| 5 | .30 | 8.0 | 2.0 | 2.0 | 20 | 491 | 9.2 | 5.7 | .00 | .00 | 130 | 137 |
| 6 | 383 | 30 | 2.0 | 2.0 | 20 | 732 | 9.9 | 3.0 | .00 | .00 | 42 | 7.0 |
| 7 | 373 | 14 | 2.0 | 2.0 | 20 | 500 | 9.2 | .95 | .00 | .00 | 22 | 5.5 |
| 8 | 219 | 10 | 2.0 | 2.0 | 20 | 234 | 8.5 | .80 | .00 | .00 | 17 | 4.4 |
| 9 | 2070 | 9.0 | 2.0 | 2.0 | 20 | 122 | 8.5 | .80 | .00 | .00 | 55 | 2.7 |
| 10 | 9980 | 8.0 | 2.0 | 2.0 | 20 | 84 | 8.5 | .80 | .00 | .00 | 62 | 1.2 |
| 11 | 3000 | 7.0 | 2.0 | 2.0 | 25 | 65 | 8.5 | 1.0 | .00 | .00 | 6.4 | .82 |
| 12 | 558 | 6.0 | 2.0 | 2.0 | 30 | 62 | 7.1 | .95 | .00 | 18 | 60 | .10 |
| 13 | 400 | 5.0 | 2.0 | 2.0 | 40 | 92 | 6.4 | 1.0 | .00 | 19 | 189 | .17 |
| 14 | 200 | 4.0 | 2.0 | 50 | 100 | 97 | 5.7 | .85 | .00 | 3.0 | 80 | .09 |
| 15 | 100 | 4.0 | 2.0 | 200 | 250 | 66 | 4.6 | .85 | .00 | .55 | 86 | .12 |
| 16 | 50 | 3.0 | 2.0 | 500 | 200 | 65 | 5.7 | .85 | .00 | .85 | 61 | .04 |
| 17 | 30 | 3.0 | 2.0 | 300 | 150 | 60 | 4.2 | .65 | .00 | .00 | 58 | 3.2 |
| 18 | 20 | 3.0 | 2.0 | 100 | 100 | 55 | 4.6 | .16 | .00 | 20 | 53 | 4.6 |
| 19 | 15 | 2.0 | 2.0 | 50 | 80 | 40 | 5.0 | .24 | .00 | 4.6 | 131 | 1.6 |
| 20 | 10 | 2.0 | 2.0 | 30 | 70 | 35 | 4.2 | .55 | .00 | .75 | 223 | .25 |
| 21 | 9.0 | 2.0 | 2.0 | 20 | 60 | 30 | 5.7 | .50 | .00 | .00 | 107 | .00 |
| 22 | 9.0 | 2.0 | 2.0 | 15 | 50 | 25 | 4.6 | .30 | .00 | .00 | 46 | 193 |
| 23 | 9.0 | 2.0 | 2.0 | 10 | 45 | 20 | 6.4 | .09 | .00 | 117 | 32 | 85 |
| 24 | 8.0 | 2.0 | 2.0 | 10 | 44 | 20 | 4.6 | .00 | .00 | .60 | 32 | 15 |
| 25 | 8.0 | 2.0 | 2.0 | 10 | 55 | 17 | 5.0 | .00 | .00 | .50 | 32 | 8.3 |
| 26 | 8.0 | 2.0 | 2.0 | 10 | 43 | 13 | 6.4 | .00 | .00 | .50 | 23 | 5.9 |
| 27 | 8.0 | 2.0 | 2.0 | 10 | 43 | 18 | 4.2 | .00 | .00 | .09 | 20 | 4.2 |
| 28 | 8.0 | 2.0 | 2.0 | 10 | 43 | 15 | 5.0 | .00 | .00 | 2.6 | 44 | .84 |
| 29 | 8.0 | 2.0 | 2.0 | 10 | --- | 12 | 6.4 | .00 | .55 | 9.4 | 11 | .38 |
| 30 | 8.0 | 2.0 | 2.0 | 10 | --- | 9.9 | 4.6 | .00 | .00 | 9.2 | 10 | .32 |
| 31 | 8.0 | --- | 2.0 | 15 | --- | 11 | --- | .00 | --- | 107 | 27 | --- |
| TOTAL | 17500.00 | 170.0 | 62.0 | 1386.0 | 1628 | 14220.9 | 207.6 | 39.84 | .55 | 313.64 | 2087.4 | 522.33 |
| MEAN | 565 | 5.67 | 2.00 | 44.7 | 58.1 | 459 | 6.92 | 1.29 | .018 | 10.1 | 67.3 | 17.4 |
| MAX | 9980 | 30 | 2.0 | 500 | 250 | 4870 | 13 | 9.2 | .55 | 117 | 223 | 193 |
| MIN | .00 | 2.0 | 2.0 | 2.0 | 20 | 9.9 | 4.2 | .00 | .00 | .00 | 6.4 | .00 |
| AC-FT | 34710 | 337 | 123 | 2750 | 3230 | 28210 | 412 | 79 | 1.1 | 622 | 4140 | 1040 |

CAL YR 1977 TOTAL 24384.60 MEAN 66.8 MAX 9980 MIN .00 AC-FT 48370
WTR YR 1978 TOTAL 38138.26 MEAN 104 MAX 9980 MIN .00 AC-FT 75650

NOTE.--No gage-height record Oct. 10 to Feb. 24.

09473500 SAN PEDRO RIVER AT WINKELMAN, AZ--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--January 1966 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: January 1966 to September 1976.
WATER TEMPERATURES: January 1966 to September 1976.
SUSPENDED-SEDIMENT DISCHARGE: January 1966 to September 1976.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | TUR-BID-ITY (JTU) | OXYGEN, DIS-SOLVED (MG/L) | COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 11... | 1300 | 556 | 900 | 8.4 | 23.0 | 47000 | -- | -- |
| 26... | 1400 | 8.3 | 1530 | 8.1 | 28.5 | 320 | 7.7 | 56 |
| NOV | | | | | | | | |
| 29... | 1500 | 2.0 | 1800 | 8.2 | 21.0 | 30 | 8.7 | 32 |
| JAN | | | | | | | | |
| 30... | 1200 | 3.0 | 1700 | 8.2 | 14.5 | -- | 10.3 | 18 |
| MAR | | | | | | | | |
| 02... | 1200 | 4200 | 530 | 8.3 | 12.0 | -- | 9.9 | 6200 |
| 24... | 1300 | 9.6 | 1550 | 7.6 | 15.0 | -- | -- | -- |
| APR | | | | | | | | |
| 12... | 1500 | 9.4 | 1650 | 8.1 | 16.0 | -- | 9.6 | 37 |

| DATE | STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | BICAR-BONATE (MG/L AS HCO3) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 11... | -- | 270 | 69 | 79 | 17 | 93 | 2.5 | 6.3 | 240 |
| 26... | 140 | 420 | 240 | 120 | 30 | 180 | 3.8 | 8.9 | 220 |
| NOV | | | | | | | | | |
| 29... | 57 | 490 | 320 | 140 | 35 | 210 | 4.1 | 9.4 | 210 |
| JAN | | | | | | | | | |
| 30... | 40 | 560 | 350 | 170 | 34 | 170 | 3.1 | 10 | -- |
| MAR | | | | | | | | | |
| 02... | 22000 | 210 | 38 | 65 | 11 | 40 | 1.2 | 4.4 | -- |
| 24... | -- | 480 | 320 | 140 | 31 | 170 | 3.4 | 11 | -- |
| APR | | | | | | | | | |
| 12... | 110 | 500 | 330 | 140 | 36 | 200 | 3.9 | 11 | -- |

| DATE | CAR-BONATE (MG/L AS CO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER AC-FT) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 11... | 1 | 240 | 13 | 1.3 | 21 | 599 | 590 | .81 |
| 26... | 0 | 490 | 91 | 2.0 | 33 | 1050 | 1070 | 1.43 |
| NOV | | | | | | | | |
| 29... | 0 | 560 | 140 | 1.9 | 35 | 1250 | 1240 | 1.70 |
| JAN | | | | | | | | |
| 30... | -- | 510 | 120 | 1.7 | 34 | 1210 | 1180 | 1.65 |
| MAR | | | | | | | | |
| 02... | -- | 100 | 10 | .9 | 29 | 369 | 376 | .50 |
| 24... | -- | 510 | 98 | 1.8 | 34 | 1050 | 1090 | 1.43 |
| APR | | | | | | | | |
| 12... | -- | 540 | 130 | 1.8 | 32 | 1220 | 1190 | 1.66 |

09473500 SAN PEDRO RIVER AT WINKELMAN, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) | NITROGEN, AMMONIA TOTAL (MG/L AS N) | NITROGEN, ORGANIC TOTAL (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | NITROGEN, NH4 + ORG. SUSP. TOTAL (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N) | NITROGEN, TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | PHOSPHORUS, DISSOLVED (MG/L AS P) | PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 11... | -- | -- | -- | -- | -- | -- | -- | -- | 7.1 | .07 | -- |
| 26... | .60 | .65 | .01 | -- | -- | -- | .33 | -- | .32 | .02 | .03 |
| NOV | | | | | | | | | | | |
| 29... | .41 | .54 | .04 | -- | -- | -- | .15 | -- | .02 | .02 | .00 |
| JAN | | | | | | | | | | | |
| 30... | .81 | -- | .01 | .81 | .82 | .40 | .42 | 1.6 | .03 | .01 | -- |
| MAR | | | | | | | | | | | |
| 02... | .18 | -- | .11 | .42 | .53 | .13 | .40 | .71 | 8.9 | .05 | -- |
| 24... | .81 | -- | .05 | .56 | .61 | .26 | .35 | 1.4 | .16 | .00 | -- |
| APR | | | | | | | | | | | |
| 12... | 1.2 | -- | .01 | 1.6 | 1.6 | 1.2 | .36 | 2.8 | .05 | .02 | -- |

| DATE | ARSENIC TOTAL (UG/L AS AS) | ARSENIC DISSOLVED (UG/L AS AS) | BARIUM, TOTAL RECOVERABLE (UG/L AS BA) | BARIUM, DISSOLVED (UG/L AS BA) | BORON, TOTAL RECOVERABLE (UG/L AS B) | BORON, DISSOLVED (UG/L AS B) | CADMIUM TOTAL RECOVERABLE (UG/L AS CD) | CADMIUM DISSOLVED (UG/L AS CD) | CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) | CHROMIUM, DISSOLVED (UG/L AS CR) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | |
| 11... | 220 | 5 | 4000 | 200 | 430 | -- | 0 | 0 | 260 | 0 |
| 26... | 8 | -- | 200 | -- | 300 | 280 | 2 | -- | 20 | -- |
| NOV | | | | | | | | | | |
| 29... | 6 | 4 | 100 | 100 | 360 | 350 | 2 | 2 | 10 | 10 |
| JAN | | | | | | | | | | |
| 30... | 5 | -- | 200 | -- | 340 | -- | 0 | -- | 0 | -- |
| MAR | | | | | | | | | | |
| 02... | 17 | 5 | 5500 | 200 | 430 | -- | 22 | 0 | 330 | 0 |
| 24... | 8 | 3 | 400 | 200 | -- | -- | 0 | 0 | 15 | 5 |
| APR | | | | | | | | | | |
| 12... | 4 | -- | 200 | -- | 380 | -- | 2 | -- | 5 | -- |

| DATE | COBALT, TOTAL RECOVERABLE (UG/L AS CO) | COBALT, DISSOLVED (UG/L AS CO) | COPPER, TOTAL RECOVERABLE (UG/L AS CU) | COPPER, DISSOLVED (UG/L AS CU) | IRON, TOTAL RECOVERABLE (UG/L AS FE) | IRON, DISSOLVED (UG/L AS FE) | LEAD, TOTAL RECOVERABLE (UG/L AS PB) | LEAD, DISSOLVED (UG/L AS PB) | MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 11... | 8 | 0 | 1800 | 6 | 3000 | 90 | 29 | 3 | 38000 |
| 26... | -- | -- | 38 | -- | 9500 | 40 | 19 | -- | 510 |
| NOV | | | | | | | | | |
| 29... | 2 | 2 | 10 | 2 | 240 | 20 | 6 | 4 | 40 |
| JAN | | | | | | | | | |
| 30... | -- | -- | 5 | -- | 550 | -- | 6 | -- | 90 |
| MAR | | | | | | | | | |
| 02... | -- | 0 | 2800 | 9 | 330000 | 0 | 2700 | 6 | 39000 |
| 24... | 2 | 0 | 56 | 5 | 11000 | 360 | 15 | 5 | 190 |
| APR | | | | | | | | | |
| 12... | -- | -- | 43 | -- | 950 | -- | 18 | -- | 40 |

09473500 SAN PEDRO RIVER AT WINKELMAN, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | MANGANESE, DISSOLVED (UG/L AS MN) | MERCURY TOTAL RECOVERABLE (UG/L AS HG) | MERCURY DISSOLVED (UG/L AS HG) | SELENIUM, TOTAL (UG/L AS SE) | SELENIUM, DISSOLVED (UG/L AS SE) | SILVER, TOTAL RECOVERABLE (UG/L AS AG) | SILVER, DISSOLVED (UG/L AS AG) | ZINC, TOTAL RECOVERABLE (UG/L AS ZN) | ZINC, DISSOLVED (UG/L AS ZN) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 11... | 0 | 9.1 | .2 | 2 | 1 | 0 | 0 | 2400 | 10 |
| 26... | 0 | .2 | -- | 1 | -- | 2 | -- | 50 | -- |
| NOV | | | | | | | | | |
| 29... | 0 | .0 | .0 | 1 | 0 | 1 | 0 | 10 | 10 |
| JAN | | | | | | | | | |
| 30... | -- | .3 | -- | 0 | -- | 0 | -- | 20 | -- |
| MAR | | | | | | | | | |
| 02... | 0 | .5 | .0 | 2 | 0 | 2 | 0 | 3400 | 10 |
| 24... | 5 | .9 | .0 | 1 | 1 | 0 | 0 | 70 | 10 |
| APR | | | | | | | | | |
| 12... | -- | .0 | -- | 1 | -- | 0 | -- | 100 | -- |

| DATE | CARBON, ORGANIC TOTAL (MG/L AS C) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS (UG/L) | PHYTOPLANKTON, TOTAL (CELLS PER ML) |
|---|---|---|---|---|
| OCT | | | | |
| 26... | -- | .00 | 2 | -- |
| NOV | | | | |
| 29... | 1.9 | .00 | 4 | -- |
| JAN | | | | |
| 30... | 2.2 | .00 | 1 | -- |
| MAR | | | | |
| 02... | 380 | 13 | 3 | 0 |
| APR | | | | |
| 12... | 2.9 | .00 | 1 | 2200 |

09473500 SAN PEDRO RIVER AT WINKELMAN, AZ--Continued

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | TEMPER-ATURE (DEG C) | SEDI-MENT, SUS-PENDED (MG/L) | SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) | SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM | SED. SUSP. FALL DIAM. % FINER THAN .002 MM |
|---|---|---|---|---|---|---|---|
| OCT | | | | | | | |
| 26... | 1400 | 8.3 | 28.5 | 478 | 11 | 97 | -- |
| JAN | | | | | | | |
| 30... | 1200 | 3.0 | 14.5 | 160 | 1.3 | 71 | -- |
| MAR | | | | | | | |
| 02... | 1200 | 4200 | 12.0 | 43800 | 497000 | -- | 18 |
| APR | | | | | | | |
| 12... | 1500 | 9.4 | 16.0 | 82 | 2.1 | 82 | -- |
| AUG | | | | | | | |
| 01... | 1100 | 87 | 33.0 | 16200 | 3810 | 99 | -- |
| SEP | | | | | | | |
| 12... | 1500 | .10 | 34.0 | 220 | .06 | 77 | -- |

| DATE | SED. SUSP. FALL DIAM. % FINER THAN .004 MM | SED. SUSP. FALL DIAM. % FINER THAN .016 MM | SED. SUSP. FALL DIAM. % FINER THAN .062 MM | SED. SUSP. FALL DIAM. % FINER THAN .125 MM | SED. SUSP. FALL DIAM. % FINER THAN .250 MM | SED. SUSP. FALL DIAM. % FINER THAN .500 MM |
|---|---|---|---|---|---|---|
| OCT | | | | | | |
| 26... | -- | -- | -- | -- | -- | -- |
| JAN | | | | | | |
| 30... | -- | -- | -- | -- | -- | -- |
| MAR | | | | | | |
| 02... | 19 | 35 | 74 | 92 | 99 | 100 |
| APR | | | | | | |
| 12... | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | |
| 01... | -- | -- | -- | -- | -- | -- |
| SEP | | | | | | |
| 12... | -- | -- | -- | -- | -- | -- |

| DATE | TIME | BED MAT. SIEVE DIAM. % FINER THAN .062 MM | BED MAT. SIEVE DIAM. % FINER THAN .125 MM | BED MAT. SIEVE DIAM. % FINER THAN .250 MM | BED MAT. SIEVE DIAM. % FINER THAN .500 MM | BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM | BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM | BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM |
|---|---|---|---|---|---|---|---|---|
| MAR | | | | | | | | |
| 02... | 1200 | 7 | 17 | 38 | 78 | 96 | 99 | 100 |

09473500 SAN PEDRO RIVER AT WINKELMAN, AZ--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | MAR 2,78 | APR 12,78 |
|---|---|---|
| TIME | 1200 | 1500 |
| TOTAL CELLS/ML | 0 | 2200 |
| DIVERSITY: DIVISION | 0.0 | 0.8 |
| .CLASS | 0.0 | 0.8 |
| ..ORDER | 0.0 | 1.1 |
| ...FAMILY | 0.0 | 1.4 |
| ....GENUS | 0.0 | 1.4 |

| ORGANISM | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT |
|---|---|---|---|---|
| CHLOROPHYTA (GREEN ALGAE) | | | | |
| .CHLOROPHYCEAE | | | | |
| ..CHLOROCOCCALES | | | | |
| ...SCENEDESMACEAE | | | | |
| ....SCENEDESMUS | -- | - | 20 | 1 |
| CHRYSOPHYTA | | | | |
| .BACILLARIOPHYCEAE | | | | |
| ..CENTRALES | | | | |
| ...COSCINODISCACEAE | | | | |
| ....CYCLOTELLA | -- | - | 40 | 2 |
| ..PENNALES | | | | |
| ...NAVICULACEAE | | | | |
| ....NAVICULA | -- | - | 60 | 3 |
| ...NITZSCHIACEAE | | | | |
| ....NITZSCHIA | -- | - | 1500# | 70 |
| ...SURIRELLACEAE | | | | |
| ....SURIRELLA | -- | - | 60 | 3 |
| CYANOPHYTA (BLUE-GREEN ALGAE) | | | | |
| .CYANOPHYCEAE | | | | |
| ..CHROCOCCALES | | | | |
| ...CHROCOCCACEAE | | | | |
| ....AGMENELLUM | -- | - | 80 | 4 |
| ..HORMOGONALES | | | | |
| ...NOSTOCACEAE | | | | |
| ....ANABAENA | -- | - | 400# | 18 |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

## 09474000 GILA RIVER AT KELVIN, AZ
(National stream-quality accounting network station)

LOCATION.--Lat 33°06'10", long 110°58'33", in NE¼NW¼ sec.12, T.4 S., R.13 E., Pinal County, Hydrologic Unit 15050100, on left bank at Kelvin, 500 ft (152 m) downstream from Mineral Creek, 18 mi (29 km) downstream from San Pedro River, and 19 mi (31 km) upstream from Ashurst-Hayden Dam.

DRAINAGE AREA.--18,011 $mi^2$ (46,648 $km^2$), of which 5,125 $mi^2$ (13,274 $km^2$) is below Coolidge Dam.

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1911 to current year.

REVISED RECORDS.--WSP 329: 1911. WSP 609: 1916(M). WSP 629: 1914-17. WSP 1119: 1913, 1915, 1917(M), 1921(M), 1922-23, 1927(M). WSP 1283: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,745.02 ft (531.882 m) National Geodetic Vertical Datum of 1929. Prior to June 15, 1914, and Dec. 1, 1914, to Aug. 31, 1915, nonrecording gages at several sites within 2 mi (3 km) of present site at different datums. Sept. 1, 1915, to Sept. 30, 1963, water-stage recorder at site 900 ft (270 m) downstream at datum 1.80 ft (0.549 m) lower.

REMARKS.--Records good. Large diversions above station for irrigation, of which about 90 percent is above Coolidge Dam. About 82,000 acres (332 $km^2$) irrigated, a considerable portion by pumping from ground water. Flow regulated by San Carlos Reservoir 49 mi (79 km) upstream since Nov. 15, 1928. (See sta 09469000.) San Pedro River contributes major portion of unregulated inflow.

AVERAGE DISCHARGE (adjusted for storage in San Carlos Reservoir).--67 years, 454 $ft^3/s$ (12.86 $m^3/s$), 328,900 acre-ft/yr (406 $hm^3/yr$); median of yearly mean discharges, 300 $ft^3/s$ (8.50 $m^3/s$), 217,000 acre-ft/yr (268 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 132,000 $ft^3/s$ (3,740 $m^3/s$) Jan. 20, 1916, gage height, 19.5 ft (5.94 m), from rating curve extended above slope-area measurement at gage height 16.2 ft (4.94 m) for flood of Sept. 28, 1926; minimum daily, 0.1 $ft^3/s$ (0.003 $m^3/s$) June 25, 1961.
Maximum discharge since completion of Coolidge Dam, 42,800 $ft^3/s$ (1,210 $m^3/s$) Aug. 8, 1930, gage height, 12.6 ft (3.84 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*) and peak discharges above base of 4,000 $ft^3/s$ (113 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|
| Oct. 11 | 1000 | *16,100 | 456 | 20.40 | 6.218 |
| Feb. 12 | 0500 | 4,130 | 117 | 10.73 | 3.271 |
| Mar. 3 | 0100 | 6,680 | 189 | 13.23 | 4.033 |

Minimum daily, 8.2 $ft^3/s$ (0.23 $m^3/s$) Oct. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 30 | 20 | 10 | 57 | 238 | 1540 | 374 | 466 | 398 | 740 | 1480 | 800 |
| 2 | 20 | 17 | 12 | 41 | 285 | 5440 | 353 | 401 | 422 | 725 | 1550 | 800 |
| 3 | 13 | 15 | 30 | 34 | 193 | 6300 | 347 | 353 | 446 | 725 | 918 | 790 |
| 4 | 11 | 15 | 37 | 31 | 84 | 3280 | 341 | 335 | 450 | 715 | 918 | 795 |
| 5 | 8.2 | 15 | 39 | 30 | 68 | 1180 | 329 | 305 | 462 | 700 | 900 | 967 |
| 6 | 292 | 17 | 40 | 28 | 64 | 1330 | 326 | 296 | 506 | 685 | 795 | 810 |
| 7 | 903 | 46 | 42 | 26 | 91 | 1220 | 362 | 293 | 522 | 685 | 730 | 775 |
| 8 | 317 | 25 | 42 | 25 | 120 | 785 | 394 | 288 | 522 | 700 | 602 | 760 |
| 9 | 1360 | 18 | 42 | 24 | 114 | 482 | 415 | 290 | 562 | 715 | 615 | 720 |
| 10 | 3550 | 16 | 42 | 26 | 89 | 341 | 415 | 299 | 578 | 735 | 735 | 675 |
| 11 | 10400 | 14 | 52 | 29 | 2420 | 314 | 408 | 296 | 574 | 750 | 690 | 640 |
| 12 | 879 | 13 | 86 | 26 | 2110 | 335 | 390 | 296 | 566 | 810 | 700 | 625 |
| 13 | 288 | 13 | 89 | 24 | 682 | 546 | 356 | 296 | 558 | 828 | 805 | 606 |
| 14 | 158 | 13 | 91 | 24 | 702 | 510 | 398 | 290 | 558 | 828 | 735 | 586 |
| 15 | 105 | 12 | 94 | 286 | 1030 | 404 | 436 | 296 | 550 | 834 | 720 | 554 |
| 16 | 76 | 12 | 108 | 2740 | 635 | 278 | 443 | 329 | 558 | 834 | 710 | 514 |
| 17 | 65 | 12 | 117 | 566 | 429 | 245 | 446 | 380 | 558 | 822 | 700 | 474 |
| 18 | 56 | 12 | 125 | 730 | 214 | 236 | 446 | 401 | 558 | 840 | 700 | 462 |
| 19 | 56 | 12 | 126 | 297 | 172 | 224 | 466 | 412 | 558 | 834 | 750 | 443 |
| 20 | 44 | 12 | 126 | 190 | 150 | 208 | 486 | 412 | 566 | 822 | 760 | 443 |
| 21 | 42 | 11 | 125 | 304 | 137 | 197 | 502 | 412 | 590 | 822 | 735 | 418 |
| 22 | 37 | 11 | 127 | 168 | 129 | 190 | 502 | 412 | 590 | 822 | 725 | 467 |
| 23 | 31 | 10 | 127 | 104 | 118 | 264 | 502 | 415 | 598 | 1020 | 725 | 515 |
| 24 | 28 | 10 | 129 | 81 | 113 | 311 | 502 | 443 | 615 | 816 | 730 | 347 |
| 25 | 26 | 10 | 130 | 68 | 108 | 296 | 407 | 470 | 635 | 840 | 755 | 311 |
| 26 | 25 | 10 | 130 | 60 | 104 | 285 | 474 | 470 | 660 | 780 | 780 | 280 |
| 27 | 24 | 11 | 133 | 55 | 103 | 293 | 462 | 462 | 670 | 775 | 785 | 234 |
| 28 | 22 | 10 | 133 | 48 | 186 | 290 | 462 | 440 | 760 | 755 | 790 | 214 |
| 29 | 23 | 9.8 | 140 | 45 | --- | 332 | 462 | 426 | 810 | 760 | 785 | 210 |
| 30 | 23 | 9.8 | 147 | 46 | --- | 365 | 458 | 398 | 760 | 760 | 780 | 206 |
| 31 | 23 | --- | 99 | 81 | --- | 368 | --- | 387 | --- | 902 | 785 | --- |
| TOTAL | 18935.2 | 431.6 | 2770 | 6294 | 10888 | 28389 | 12664 | 11469 | 17160 | 24379 | 24688 | 16441 |
| MEAN | 611 | 14.4 | 89.4 | 203 | 389 | 916 | 422 | 370 | 572 | 786 | 803 | 548 |
| MAX | 10400 | 46 | 147 | 2740 | 2420 | 6300 | 502 | 470 | 810 | 1020 | 1550 | 967 |
| MIN | 8.2 | 9.8 | 10 | 24 | 64 | 190 | 326 | 288 | 398 | 685 | 602 | 206 |
| AC-FT | 37560 | 856 | 5490 | 12480 | 21600 | 56310 | 25120 | 22750 | 34040 | 48360 | 49370 | 32610 |

CAL YR 1977 TOTAL 50208.90 MEAN 138 MAX 10400 MIN .20 AC-FT 99590
WTR YR 1978 TOTAL 174708.80 MEAN 479 MAX 10400 MIN 8.2 AC-FT 346500

09474000 GILA RIVER AT KELVIN, AZ--Continued

WATER-QUALITY RECORDS

LOCATION.--Water samples collected at Florence-Kelvin road bridge 200 ft (60 m) upstream from Mineral Creek, and 700 ft (200 m) upstream from gaging station.

PERIOD OF RECORD.--December 1950 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1964 to September 1976.
WATER TEMPERATURES: December 1950 to September 1976.
SUSPENDED-SEDIMENT DISCHARGE: January 1958 to September 1976.

REMARKS.--No inflow from Mineral Creek between sampling point and gaging station except during infrequent periods of heavy local rains. Unpublished daily specific conductance measurements for period December 1950 to September 1964 available from district office in Tucson, Ariz.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | TUR-BID-ITY (JTU) | OXYGEN, DIS-SOLVED (MG/L) | COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 11... | 1700 | 11500 | 980 | 8.3 | 22.5 | 72000 | -- | -- |
| 26... | 1430 | 25 | 2200 | 8.0 | 22.0 | 25 | 8.8 | 18 |
| DEC | | | | | | | | |
| 01... | 1500 | 9.7 | 2700 | 7.9 | 13.0 | 10 | 10.8 | 15 |
| JAN | | | | | | | | |
| 30... | 1400 | 56 | 2300 | 8.1 | 13.0 | -- | 10.7 | 80 |
| MAR | | | | | | | | |
| 03... | 1745 | 5600 | 475 | 8.3 | 11.0 | -- | -- | -- |
| JUL | | | | | | | | |
| 19... | 1300 | 850 | 1040 | 8.1 | 23.0 | -- | 7.7 | 410 |

| DATE | STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | BICAR-BONATE (MG/L AS HCO3) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 11... | -- | 290 | 84 | 86 | 18 | 110 | 2.8 | 6.8 | 250 |
| 26... | 80 | 670 | 440 | 180 | 54 | 240 | 4.0 | 9.8 | 280 |
| DEC | | | | | | | | | |
| 01... | 43 | 840 | 580 | 220 | 70 | 280 | 4.2 | 9.7 | 310 |
| JAN | | | | | | | | | |
| 30... | 290 | 710 | 470 | 200 | 51 | 240 | 3.9 | 11 | -- |
| MAR | | | | | | | | | |
| 03... | -- | 190 | 57 | 59 | 10 | 30 | 1.0 | 4.1 | 160 |
| JUL | | | | | | | | | |
| 19... | K6600 | 210 | 72 | 60 | 15 | 130 | 3.9 | 4.8 | -- |

| DATE | CAR-BONATE (MG/L AS CO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER AC-FT) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 11... | 0 | 260 | 25 | 1.4 | 22 | 660 | 653 | .90 |
| 26... | 0 | 510 | 280 | 1.2 | 28 | 1470 | 1440 | 2.00 |
| DEC | | | | | | | | |
| 01... | 0 | 620 | 360 | .9 | 26 | 1810 | 1740 | 2.46 |
| JAN | | | | | | | | |
| 30... | -- | 510 | 310 | .9 | 29 | 1560 | 1500 | 2.12 |
| MAR | | | | | | | | |
| 03... | 0 | 100 | 12 | -- | -- | -- | -- | -- |
| JUL | | | | | | | | |
| 19... | -- | 98 | 170 | .8 | 29 | 586 | 592 | .80 |

K Based on non-ideal colony count.

09474000 GILA RIVER AT KELVIN, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) | NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO-GEN, NH4 + ORG. SUSP. TOTAL (MG/L AS N) | NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N) | NITRO-GEN, NH4 + ORG. TOT IN BOT MAT (MG/KG AS N) | NITRO-GEN, TOTAL (MG/L AS N) | PHOS-PHORUS, TOTAL (MG/L AS P) | PHOS-PHORUS, DIS-SOLVED (MG/L AS P) | PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 11... | -- | -- | -- | -- | -- | -- | -- | -- | -- | 4.2 | .07 | -- |
| 26... | .20 | .18 | .01 | -- | -- | -- | .03 | -- | -- | .08 | .07 | .01 |
| DEC | | | | | | | | | | | | |
| 01... | .06 | .04 | .04 | -- | -- | -- | .24 | -- | -- | .05 | .03 | .03 |
| JAN | | | | | | | | | | | | |
| 30... | .39 | -- | .01 | .44 | .45 | .10 | .35 | -- | .84 | .02 | .04 | -- |
| JUL | | | | | | | | | | | | |
| 19... | .30 | -- | .01 | 1.4 | 1.4 | .88 | .52 | 58 | 1.7 | .46 | .14 | -- |

| DATE | ARSENIC TOTAL (UG/L AS AS) | ARSENIC DIS-SOLVED (UG/L AS AS) | ARSENIC TOTAL IN BOT-TOM MA-TERIAL (UG/G AS AS) | BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) | BARIUM, DIS-SOLVED (UG/L AS BA) | BARIUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS BA) | BORON, TOTAL RECOV-ERABLE (UG/L AS B) | BORON, DIS-SOLVED (UG/L AS B) | CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) | CADMIUM DIS-SOLVED (UG/L AS CD) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | |
| 11... | 220 | 5 | -- | 5000 | 300 | -- | 450 | -- | 1 | 1 |
| 26... | 5 | -- | -- | 200 | -- | -- | 280 | 260 | 2 | -- |
| DEC | | | | | | | | | | |
| 01... | 4 | 3 | -- | 100 | 100 | -- | 310 | 270 | 3 | 2 |
| JAN | | | | | | | | | | |
| 30... | 4 | -- | -- | 200 | -- | -- | 280 | -- | 0 | -- |
| MAR | | | | | | | | | | |
| 03... | 13 | -- | -- | 1700 | -- | -- | 210 | 90 | 0 | -- |
| JUL | | | | | | | | | | |
| 19... | 6 | -- | 3 | 300 | -- | 70 | 210 | -- | 2 | -- |

| DATE | CADMIUM RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CD) | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) | CHRO-MIUM, DIS-SOLVED (UG/L AS CR) | CHRO-MIUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G) | COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) | COBALT, DIS-SOLVED (UG/L AS CO) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) | COPPER, DIS-SOLVED (UG/L AS CU) | COPPER, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CU) | IRON, TOTAL RECOV-ERABLE (UG/L AS FE) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | |
| 11... | -- | 290 | 10 | -- | 250 | 0 | 2000 | 6 | -- | 280000 |
| 26... | -- | 10 | -- | -- | -- | -- | 8 | -- | -- | 540 |
| DEC | | | | | | | | | | |
| 01... | -- | 10 | 20 | -- | 1 | 1 | 17 | 4 | -- | 350 |
| JAN | | | | | | | | | | |
| 30... | -- | 0 | -- | -- | -- | -- | 10 | -- | -- | 400 |
| MAR | | | | | | | | | | |
| 03... | -- | 160 | -- | -- | -- | -- | 1000 | -- | -- | 180000 |
| JUL | | | | | | | | | | |
| 19... | 15 | 0 | -- | 3 | -- | -- | 50 | -- | 300 | 11000 |

09474000 GILA RIVER AT KELVIN, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | IRON, DIS-SOLVED (UG/L AS FE) | LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) | LEAD, DIS-SOLVED (UG/L AS PB) | LEAD, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS PB) | MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) | MANGA-NESE, DIS-SOLVED (UG/L AS MN) | MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) | MERCURY DIS-SOLVED (UG/L AS HG) | MERCURY RECOV. FM BOT-TOM MA-TERIAL (UG/L AS HG) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 11... | 40 | 28 | 3 | -- | 36000 | 0 | 7.6 | .2 | -- |
| 26... | 30 | 5 | -- | -- | 480 | 0 | .0 | -- | -- |
| DEC | | | | | | | | | |
| 01... | 20 | 12 | 5 | -- | 830 | 0 | .0 | .0 | -- |
| JAN | | | | | | | | | |
| 30... | -- | 5 | -- | -- | 650 | -- | .1 | -- | -- |
| MAR | | | | | | | | | |
| 03... | 150 | 700 | -- | -- | 11000 | 0 | 1.1 | -- | -- |
| JUL | | | | | | | | | |
| 19... | -- | 27 | -- | 0 | 400 | -- | .0 | -- | .1 |

| DATE | SELE-NIUM, TOTAL (UG/L AS SE) | SELE-NIUM, DIS-SOLVED (UG/L AS SE) | SELE-NIUM, TOTAL IN BOT-TOM MA-TERIAL (UG/G) | SILVER, TOTAL RECOV-ERABLE (UG/L AS AG) | SILVER, DIS-SOLVED (UG/L AS AG) | SILVER, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS AG) | ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) | ZINC, DIS-SOLVED (UG/L AS ZN) | ZINC, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS ZN) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 11... | 2 | 1 | -- | 0 | 0 | -- | 2500 | 20 | -- |
| 26... | 0 | -- | -- | 1 | -- | -- | 10 | -- | -- |
| DEC | | | | | | | | | |
| 01... | 0 | 0 | -- | 1 | 0 | -- | 10 | 10 | -- |
| JAN | | | | | | | | | |
| 30... | 0 | -- | -- | 0 | -- | -- | 40 | -- | -- |
| MAR | | | | | | | | | |
| 03... | 3 | -- | -- | 2 | -- | -- | 1000 | -- | -- |
| JUL | | | | | | | | | |
| 19... | 0 | -- | 0 | 0 | -- | 2 | 60 | -- | 35 |

| DATE | CARBON, ORGANIC TOTAL (MG/L AS C) | CYANIDE TOTAL (MG/L AS CN) | CYANIDE TOTAL IN BOT-TOM MA-TERIAL (UG/G AS CN) | PHENOLS (UG/L) | PHYTO-PLANK-TON, TOTAL (CELLS PER ML) |
|---|---|---|---|---|---|
| OCT | | | | | |
| 26... | -- | .00 | -- | 2 | -- |
| DEC | | | | | |
| 01... | 2.6 | .00 | -- | 2 | -- |
| JAN | | | | | |
| 30... | 3.2 | .00 | -- | 1 | -- |
| APR | | | | | |
| 13... | -- | -- | -- | -- | 200 |
| JUL | | | | | |
| 19... | 10 | .00 | 0 | 1 | 840 |

09474000 GILA RIVER AT KELVIN, AZ--Continued

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | TEMPER-ATURE (DEG C) | SEDI-MENT, SUS-PENDED (MG/L) | SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) | SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM | SED. SUSP. FALL DIAM. % FINER THAN .002 MM |
|---|---|---|---|---|---|---|---|
| OCT | | | | | | | |
| 11... | 1700 | 11500 | 22.5 | 50000 | 550000 | -- | 56 |
| 26... | 1430 | 25 | 22.0 | 106 | 7.2 | 87 | -- |
| JAN | | | | | | | |
| 30... | 1400 | 56 | 13.0 | 140 | 21 | 53 | -- |
| MAR | | | | | | | |
| 03... | 1500 | 5970 | 12.0 | 9100 | 147000 | -- | 41 |
| MAY | | | | | | | |
| 19... | 1600 | 412 | 22.0 | 130 | 145 | 76 | -- |
| JUN | | | | | | | |
| 06... | 1300 | 488 | 23.0 | 130 | 171 | 77 | -- |
| SEP | | | | | | | |
| 12... | 1230 | 625 | 23.5 | 70 | 118 | 20 | -- |

| DATE | SED. SUSP. FALL DIAM. % FINER THAN .004 MM | SED. SUSP. FALL DIAM. % FINER THAN .016 MM | SED. SUSP. FALL DIAM. % FINER THAN .062 MM | SED. SUSP. FALL DIAM. % FINER THAN .125 MM | SED. SUSP. FALL DIAM. % FINER THAN .250 MM | SED. SUSP. FALL DIAM. % FINER THAN .500 MM | SED. SUSP. FALL DIAM. % FINER THAN 1.00 MM |
|---|---|---|---|---|---|---|---|
| OCT | | | | | | | |
| 11... | 72 | 94 | 99 | 99 | 99 | 100 | -- |
| 26... | -- | -- | -- | -- | -- | -- | -- |
| JAN | | | | | | | |
| 30... | -- | -- | -- | -- | -- | -- | -- |
| MAR | | | | | | | |
| 03... | 57 | 82 | 88 | 90 | 92 | 96 | 100 |
| MAY | | | | | | | |
| 19... | -- | -- | -- | -- | -- | -- | -- |
| JUN | | | | | | | |
| 06... | -- | -- | -- | -- | -- | -- | -- |
| SEP | | | | | | | |
| 12... | -- | -- | -- | -- | -- | -- | -- |

PARTICLE-SIZE DISTRIBUTION OF SURFACE BED MATERIAL, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | BED MAT. SIEVE DIAM. % FINER THAN .062 MM | BED MAT. SIEVE DIAM. % FINER THAN .125 MM | BED MAT. SIEVE DIAM. % FINER THAN .250 MM | BED MAT. SIEVE DIAM. % FINER THAN .500 MM | BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM | BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM | BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM | BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM | BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | |
| 11... | 1700 | 1 | 1 | 1 | 11 | 35 | 47 | 61 | 78 | 100 |
| MAR | | | | | | | | | | |
| 03... | 1500 | -- | -- | 1 | 7 | 31 | 62 | 83 | 91 | 100 |

09474000 GILA RIVER AT KELVIN, AZ--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

PHYTOPLANKTON

| DATE | APR 13,78 | JUL 19,78 |
|---|---|---|
| TIME | 1300 | 1300 |
| TOTAL CELLS/ML | 200 | 840 |
| DIVERSITY: DIVISION | 0.5 | 1.5 |
| .CLASS | 0.5 | 1.5 |
| ..ORDER | 1.2 | 1.7 |
| ...FAMILY | 1.8 | 2.4 |
| ....GENUS | 1.8 | 2.4 |

| ORGANISM | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT |
|---|---|---|---|---|
| CHLOROPHYTA (GREEN ALGAE) | | | | |
| .CHLOROPHYCEAE | | | | |
| ..CHLOROCOCCALES | | | | |
| ...CHARACIACEAE | | | | |
| ....CHARACIUM | -- | - | 22 | 3 |
| ...OOCYSTACEAE | | | | |
| ....ANKISTRODESMUS | 20 | 10 | 22 | 3 |
| CHRYSOPHYTA | | | | |
| .BACILLARIOPHYCEAE | | | | |
| ..CENTRALES | | | | |
| ...COSCINODISCACEAE | | | | |
| ....CYCLOTELLA | 40# | 20 | 44 | 5 |
| ..PENNALES | | | | |
| ...ACHNANTHACEAE | | | | |
| ....COCCONEIS | -- | - | 88 | 11 |
| ...GOMPHONEMATACEAE | | | | |
| ....GOMPHONEMA | -- | - | 22 | 3 |
| ...NAVICULACEAE | | | | |
| ....NAVICULA | 80# | 40 | 110 | 13 |
| ...NITZSCHIACEAE | | | | |
| ....NITZSCHIA | 60# | 30 | 88 | 11 |
| CYANOPHYTA (BLUE-GREEN ALGAE) | | | | |
| .CYANOPHYCEAE | | | | |
| ..HORMOGONALES | | | | |
| ...NOSTOCACEAE | | | | |
| ....ANABAENA | -- | - | 400# | 47 |
| EUGLENOPHYTA (EUGLENOIDS) | | | | |
| .EUGLENOPHYCEAE | | | | |
| ..EUGLENALES | | | | |
| ...EUGLENACEAE | | | | |
| ....TRACHELOMONAS | -- | - | 44 | 5 |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

## 09475000 GILA RIVER AT ASHURST-HAYDEN DAM, NEAR FLORENCE, AZ

LOCATION.--Lat 33°05'59", long 111°14'46", in SW¼NW¼ sec.8, T.4 S., R.11 E., Pinal County, Hydrologic Unit 15050100, on left bank at Ashurst-Hayden Dam, 9 mi (14 km) northeast of Florence.

DRAINAGE AREA.--18,305 $mi^2$ (47,410 $km^2$).

PERIOD OF RECORD.--July 1923 to current year (head on crest of dam only). Records of monthly diversions to Florence-Casa Grande Canal, January 1928 to current year.

GAGE.--Gila River: Water-stage recorder. Permanent crest of dam is 1,563.00 ft (476.402 m) National Geodetic Vertical Datum of 1929. For normal operation, crest is raised to 1,566.00 ft (477.317 m) by 3.0 ft (0.91 m) gates. Prior to December 1960, permanent crest at 1,562.6 ft (476.28 m) and normally raised about 1.2 ft (0.37 m) by use of flashboards. Prior to Apr. 12, 1932, nonrecording gage at same site and datum.

09475500. Florence-Casa Grande Canal: Water-stage recorder and Parshall flume at China Wash 2.6 mi (4.2 km) downstream from dam. Prior to Jan. 12, 1937, water-stage recorder 900 ft (270 m) downstream from dam.

REMARKS.--Records show daily mean head on dam and monthly diversions to Florence-Casa Grande Canal. Mean head is often not representative of flow passing dam because of sluiceway and crest-gate openings. Florence-Casa Grande Canal diverts water at dam supplemented by pumping from ground water for irrigation of land under 100,000-acre (400-$km^2$) San Carlos project. Canal records adjusted for sluicing through the dam or from the canal and pumping (but not natural losses), to show water available at dam, except for flow through dam or spillover dam during times of flood runoff. Flow regulated by San Carlos Reservoir. (See sta 09469000.) Diversions above station for irrigation of about 82,000 acres (330 $km^2$), a considerable portion of which is irrigated by pumping from ground water.

COOPERATION.--Records furnished by Bureau of Indian Affairs.

EXTREMES FOR PERIOD OF RECORD.--Maximum head on dam, 8.0 ft (2.44 m) Sept. 28, 1926; no flow over dam most of each year.

EXTREMES FOR CURRENT YEAR.--Maximum head on dam, 4.05 ft (1.234 m) Oct. 11; no flow over dam for most of year.

DAILY MEAN HEAD, IN FEET, OVER DAM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 0 | 0 | 0 | 0 | a | 0 | 0 | 0 | 0 | 0.33 | 0 |
| 2 | 0 | 0 | 0 | 0 | 0 | a | 0 | 0 | 0 | 0 | .27 | 0 |
| 3 | 0 | 0 | 0 | 0 | 0 | a | 0 | 0 | 0 | 0 | e | 0 |
| 4 | 0 | 0 | 0 | 0 | 0 | a | 0 | 0 | 0 | 0 | e | 0 |
| 5 | 0 | 0 | 0 | 0 | 0 | a | 0 | 0 | 0 | 0 | 0 | .04 |
| 6 | 0 | 0 | 0 | 0 | 0 | a | 0 | 0 | 0 | 0 | 0 | .01 |
| 7 | .69 | 0 | 0 | 0 | 0 | a | 0 | 0 | 0 | 0 | 0 | 0 |
| 8 | 0 | 0 | 0 | 0 | 0 | a | 0 | 0 | 0 | 0 | 0 | 0 |
| 9 | .63 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 10 | 1.73 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11 | 2.99 | 0 | 0 | 0 | d.07 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12 | .26 | 0 | 0 | 0 | a | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13 | 0 | 0 | 0 | 0 | a | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 14 | 0 | 0 | 0 | 0 | a | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 15 | 0 | 0 | 0 | .05 | a | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 16 | 0 | 0 | 0 | d1.0 | a | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 17 | 0 | 0 | 0 | a | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18 | 0 | 0 | 0 | a | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 19 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 21 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 22 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 23 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | .03 | 0 | .03 |
| 24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 25 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 27 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 28 | 0 | 0 | 0 | 0 | ------ | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 29 | 0 | 0 | 0 | 0 | ------ | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 30 | 0 | 0 | 0 | 0 | ------ | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 31 | 0 | ------ | 0 | 0 | ------ | 0 | ------ | 0 | ------ | e | 0 | ------ |

a No gage-height record with flow over crest of dam.
d Doubtful gage-height record.
e Flow over crest of dam for short time, but mean for day less than 0.01 ft.

NOTE.--No gage-height record Jan. 16-31, Feb. 11 to Mar. 16.

09475000 GILA RIVER AT ASHURST-HAYDEN DAM, NEAR FLORENCE, AZ--Continued

MONTHLY DIVERSIONS TO FLORENCE-CASA GRANDE CANAL
WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| Month | Discharge, in cubic feet per second | | | Diversions in acre-feet | Water sluiced above flume (acre-feet)† |
|---|---|---|---|---|---|
| | Maximum | Minimum | Mean | | |
| October | 1,170 | 3.0 | 182 | 11,190 | 95 |
| November | 37 | 1.4 | 9.44 | 562 | 0 |
| December | 162 | 5.0 | 79.2 | 4,870 | 0 |
| CAL YR 1977 | 1,170 | 0 | 84.7 | 61,310 | 202 |
| January | 874 | 19 | 160 | 9,830 | 298 |
| February | 346 | 34 | 138 | 7,650 | 0 |
| March | 514 | 146 | 296 | 18,210 | 0 |
| April | 473 | 332 | 411 | 24,480 | 0 |
| May | 455 | 269 | 349 | 21,450 | 0 |
| June | 789 | 372 | 547 | 32,560 | 0 |
| July | 934 | 625 | 725 | 44,600 | 0 |
| August | 1,040 | 526 | 744 | 45,740 | 536 |
| September | 855 | 195 | 530 | 31,520 | 0 |
| WTR YR 1978 | 1,170 | 1.4 | 349 | 252,700 | 929 |

† Included in first four columns of table.

NOTE.--Diversion records are those at canal gaging station at flume 2.6 mi (4.2 km) downstream from dam; values are adjusted for sluicing through the dam or from canal and pumping between intake and flume, but are not adjusted for natural losses. Adjusted values show water available at Ashurst-Hayden Dam, except for spill over the dam or water sluiced through the dam during times of flood runoff.

## 09479500 GILA RIVER NEAR LAVEEN, AZ

LOCATION.--Lat 33°15'25", long 112°09'59", in SW¼NW¼ sec.16, T.2 S., R.2 E., Pinal County, Hydrologic Unit 15050100, in Gila River Indian Reservation, on left abutment of highway bridge, 2.1 mi (3.4 km) upstream from Santa Cruz River, 2.6 mi (4.2 km) south of Komatke, and 7.3 mi (11.7 km) south of Laveen.

DRAINAGE AREA.--20,615 $mi^2$ (53,393 $km^2$), of which 696 $mi^2$ (1,803 $km^2$) is in Mexico.

PERIOD OF RECORD.--January 1940 to September 1946, December 1947 to current year.

GAGE.--Water-stage recorder above concrete diversion dam. Datum of gage is 1,018.90 ft (310.561 m) National Geodetic Vertical Datum of 1929. Since July 9, 1969, supplementary water-stage recorder on overflow channel at highway bridge 0.2 mi (0.3 km) south at same datum. Oct. 16, 1940, to July 8, 1969, supplementary staff gage or water-stage recorder on overflow channel at datum 0.23 ft (0.070 m) lower.

REMARKS.--Records fair except those for period of no gage-height record, which are poor. Records include flow over dam and in overflow channel. Large diversions above station for irrigation. Some low flow is waste water from irrigated lands. Flow partly regulated by storage in San Carlos Reservoir. (See elsewhere in this report.)

AVERAGE DISCHARGE.--36 years (water years 1941-46, 1949-78), 22.1 $ft^3/s$ (0.626 $m^3/s$), 16,010 acre-ft/yr (19.7 $hm^3/yr$); median of yearly mean discharges, 12 $ft^3/s$ (0.34 $m^3/s$) 8,700 acre-ft/yr (11 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,900 $ft^3/s$ (337 $m^3/s$) Jan. 2, 1941, gage height, 9.33 ft (2.844 m); maximum gage height, 10.08 ft (3.072 m) Dec. 26, 1965; no flow at times in most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*) and peak discharges above base of 700 $ft^3/s$ (20 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) | Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Oct. 13 | 1545 | *6,360 | 180 | 9.64 | 2.938 | Feb. 17 | 0430 | 1,160 | 32.9 | 8.02 | 2.444 |
| Jan. 18 | 1830 | 760 | 21.5 | 7.62 | 2.323 | Mar. 6 | 1915 | 1,930 | 54.7 | 8.16 | 2.487 |

No flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 3.1 | 1.8 | 1.6 | 1.3 | 1.3 | .27 | .00 | .00 | .00 | .28 | 1.0 | 1.0 |
| 2 | .20 | 1.8 | 1.1 | 1.3 | 1.3 | 1.5 | .00 | .00 | .00 | .00 | 1.0 | 1.0 |
| 3 | .00 | 1.9 | 1.7 | 1.8 | 1.3 | 437 | .00 | .00 | .00 | .00 | 1.0 | 1.0 |
| 4 | .20 | 1.9 | 1.8 | 1.9 | 1.3 | 973 | .00 | .00 | .00 | .00 | 1.0 | 1.0 |
| 5 | 2.6 | 1.8 | 1.8 | 1.9 | 1.3 | 1120 | .02 | .00 | .00 | .00 | 1.0 | 1.0 |
| 6 | 6.4 | 1.8 | 1.9 | 1.9 | 1.3 | 1690 | .00 | .00 | 2.5 | .00 | 1.0 | 1.0 |
| 7 | 15 | 1.9 | 1.8 | 2.1 | 1.3 | 1310 | .00 | .40 | 5.2 | .00 | 1.0 | 1.0 |
| 8 | 11 | 1.9 | 1.8 | 2.6 | 1.3 | 424 | .00 | 1.7 | 5.8 | .00 | 1.0 | 1.2 |
| 9 | 7.1 | 1.9 | 1.8 | 2.6 | 1.3 | 141 | .26 | 1.9 | 4.8 | .00 | 1.0 | 1.1 |
| 10 | 4.4 | 1.9 | 1.9 | 3.3 | 1.3 | 26 | .59 | 1.9 | .34 | .00 | 1.0 | 1.7 |
| 11 | 177 | 1.8 | 1.7 | 4.2 | 1.3 | 1.4 | .04 | 2.1 | .00 | .71 | 1.0 | 1.9 |
| 12 | 865 | 1.7 | 1.7 | 2.8 | 1.1 | .33 | .00 | 2.5 | .23 | .65 | 1.0 | .59 |
| 13 | 2940 | 1.7 | 1.5 | 2.1 | 538 | .81 | .00 | 2.4 | 4.4 | .36 | 1.0 | .88 |
| 14 | 1160 | 1.7 | 1.2 | 1.7 | 1110 | 24 | .00 | 2.3 | .62 | 1.4 | 1.0 | 1.9 |
| 15 | 52 | 1.7 | 1.4 | 29 | 1160 | 26 | .00 | 2.3 | .00 | .18 | 1.0 | 1.9 |
| 16 | 16 | 1.7 | 1.4 | 4.9 | 1200 | 16 | .00 | 2.4 | .00 | .00 | .00 | 1.9 |
| 17 | 13 | 1.8 | 1.2 | 202 | 1060 | 13 | .00 | 2.1 | .00 | .00 | .00 | 1.9 |
| 18 | 1.8 | 1.5 | 1.3 | 562 | 401 | 3.8 | .00 | 2.0 | .00 | .00 | .00 | 1.9 |
| 19 | 1.3 | 1.7 | 1.5 | 190 | 70 | .06 | .00 | 2.5 | .00 | .18 | .00 | 1.9 |
| 20 | 1.3 | 1.8 | 1.8 | 37 | 7.1 | .00 | .00 | 2.6 | .00 | 1.1 | .00 | 2.3 |
| 21 | 1.7 | 1.9 | 1.5 | 33 | .71 | .00 | .00 | 2.6 | .00 | 1.3 | .00 | 1.9 |
| 22 | 1.9 | 1.9 | .97 | 6.7 | .57 | .00 | .00 | 2.6 | .00 | 5.0 | .00 | 1.9 |
| 23 | 1.9 | 1.9 | .63 | 10 | .22 | .00 | .00 | 2.6 | .00 | 2.0 | .00 | .17 |
| 24 | 1.9 | 2.0 | .42 | 4.9 | .00 | .00 | .28 | 2.6 | .00 | 1.0 | .00 | .00 |
| 25 | 1.9 | 2.0 | .42 | 3.0 | .00 | .00 | .49 | 2.6 | .00 | .00 | .00 | .00 |
| 26 | 1.9 | 2.1 | .42 | 2.1 | .00 | .00 | .02 | 2.6 | .00 | .00 | .00 | .00 |
| 27 | 1.9 | 2.0 | .42 | 1.9 | .00 | .00 | .00 | 1.1 | .00 | .00 | .00 | .00 |
| 28 | 1.8 | 2.0 | .64 | 1.9 | .00 | .00 | .00 | .03 | .00 | .00 | .00 | .00 |
| 29 | 1.9 | 1.9 | 1.5 | 1.7 | --- | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 30 | 1.8 | 2.0 | 3.6 | 1.3 | --- | .00 | .00 | .00 | .02 | .00 | .00 | .00 |
| 31 | 1.9 | --- | .77 | 1.3 | --- | .00 | --- | .00 | --- | .00 | .00 | --- |
| TOTAL | 5297.90 | 55.4 | 43.19 | 1124.2 | 5583.00 | 6210.17 | 1.70 | 45.83 | 23.91 | 14.16 | 15.00 | 32.04 |
| MEAN | 171 | 1.85 | 1.39 | 36.3 | 199 | 200 | .057 | 1.48 | .80 | .46 | .48 | 1.07 |
| MAX | 2940 | 2.1 | 3.6 | 562 | 1200 | 1690 | .59 | 2.6 | 5.8 | 5.0 | 1.0 | 2.3 |
| MIN | .00 | 1.5 | .42 | 1.3 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| AC-FT | 10510 | 110 | 86 | 2230 | 11070 | 12320 | 3.4 | 91 | 47 | 28 | 30 | 64 |

CAL YR 1977 TOTAL 5735.60 MEAN 15.7 MAX 2940 MIN .00 AC-FT 11380
WTR YR 1978 TOTAL 18446.50 MEAN 50.5 MAX 2940 MIN .00 AC-FT 36590

NOTE.--No gage-height record July 22 to Sept. 8.

## 09480000 SANTA CRUZ RIVER NEAR LOCHIEL, AZ

LOCATION.--Lat 31°21'19", long 110°35'20", in SW¼ sec.11, T.24 S., R.17 E. (unsurveyed), Santa Cruz County, Hydrologic Unit 15050301, on southern border of Spanish land grant of San Rafael, near left bank on downstream side of pier of bridge on county road, 1.7 mi (2.7 km) upstream from international boundary and 2.5 mi (4.0 km) northeast of Lochiel.

DRAINAGE AREA.--82.2 $mi^2$ (212.9 $km^2$).

PERIOD OF RECORD.--January 1949 to current year.

REVISED RECORDS.--WSP 1733: 1951.

GAGE.--Water-stage recorder. Altitude of gage is 4,620 ft (1,408 m), from topographic map.

REMARKS.--Records fair. Small diversions for irrigation of 200 acres (809,000 $m^2$) above station, mostly by pumping from ground water.

AVERAGE DISCHARGE.--29 years, 3.22 $ft^3/s$ (0.091 $m^3/s$), 2,330 acre-ft/yr (2.87 $hm^3/yr$); median of yearly mean discharges, 1.9 $ft^3/s$ (0.054 $m^3/s$), 1,400 acre-ft/yr (1.73 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,000 $ft^3/s$ (340 $m^3/s$) Oct. 9, 1977, gage height, 10.21 ft (3.112 m), from rating curve extended above 1,600 $ft^3/s$ (45 $m^3/s$) on basis of slope-area measurement of peak flow; no flow at times in most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*) and peak discharges above base of 500 $ft^3/s$ (14 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) | Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Oct. 9 | 0930 | *12,000 | 340 | 10.21 | 3.112 | Aug. 3 | 2115 | 632 | 17.9 | 5.42 | 1.652 |
| July 22 | 1500 | 700 | 19.8 | 4.87 | 1.484 | | | | | | |

No flow June 11, July 1-9 and 12-20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .10 | 7.1 | 2.5 | 1.8 | 1.2 | 3.9 | 2.3 | 1.2 | .20 | .00 | .76 | 1.2 |
| 2 | .14 | 7.0 | 2.5 | 1.8 | 1.2 | 3.9 | 2.4 | 1.2 | .19 | .00 | 26 | 1.2 |
| 3 | .17 | 6.5 | 2.5 | 1.8 | 1.1 | 2.5 | 2.3 | 1.2 | .19 | .00 | 83 | 1.2 |
| 4 | .20 | 6.0 | 2.5 | 1.6 | 1.1 | 2.0 | 2.2 | .99 | .19 | .00 | 25 | 1.2 |
| 5 | .22 | 5.5 | 2.5 | 1.6 | 1.1 | 1.8 | 2.2 | .65 | .21 | .00 | 1.4 | 1.2 |
| 6 | .25 | 5.6 | 2.5 | 1.6 | 1.2 | 2.2 | 2.2 | .56 | .20 | .00 | 1.1 | 1.2 |
| 7 | 1.1 | 6.5 | 2.5 | 1.4 | 1.2 | 1.9 | 1.9 | .74 | .19 | .00 | 1.0 | 1.1 |
| 8 | 349 | 5.5 | 2.5 | 1.1 | 1.2 | 1.7 | 2.0 | .75 | .25 | .00 | 1.0 | 1.1 |
| 9 | 1710 | 5.1 | 2.5 | 1.3 | 1.1 | 1.8 | 2.3 | .42 | .20 | .00 | .99 | 1.1 |
| 10 | 78 | 5.0 | 2.5 | 1.4 | 1.2 | 1.9 | 2.3 | .57 | .12 | 2.0 | .97 | 1.0 |
| 11 | 33 | 5.0 | 2.5 | 2.7 | 3.3 | 1.9 | 2.1 | .58 | .00 | .16 | 1.0 | 1.0 |
| 12 | 19 | 5.0 | 2.9 | 1.7 | 4.4 | 2.3 | 2.0 | .51 | .17 | .00 | 1.8 | 1.0 |
| 13 | 14 | 4.8 | 2.8 | 1.4 | 1.8 | 2.9 | 1.9 | .46 | .24 | .00 | 1.5 | .99 |
| 14 | 12 | 4.8 | 2.8 | 1.5 | 25 | 2.5 | 1.8 | .54 | .27 | .00 | 1.4 | .98 |
| 15 | 11 | 4.5 | 2.6 | 4.6 | 22 | 2.3 | 1.8 | .50 | .28 | .00 | 1.4 | .97 |
| 16 | 11 | 3.9 | 2.6 | 3.1 | 3.9 | 2.1 | 1.8 | .34 | .17 | .00 | 1.4 | .97 |
| 17 | 21 | 3.8 | 2.6 | 1.9 | 2.6 | 2.2 | 1.8 | .28 | .22 | .00 | 1.5 | .96 |
| 18 | 17 | 3.8 | 2.5 | 1.7 | 2.2 | 2.3 | 1.8 | .32 | .25 | .00 | 1.5 | .93 |
| 19 | 11 | 3.9 | 2.4 | 1.6 | 2.1 | 2.4 | 1.6 | .26 | .28 | .00 | 1.5 | .92 |
| 20 | 9.2 | 4.1 | 2.2 | 2.0 | 1.8 | 2.4 | 1.5 | .21 | .28 | .00 | 1.5 | .92 |
| 21 | 9.1 | 3.9 | 1.8 | 2.0 | 1.7 | 2.3 | 1.5 | .22 | .30 | .14 | 1.5 | 16 |
| 22 | 8.7 | 3.9 | 2.0 | 1.8 | 1.7 | 2.3 | 1.5 | .26 | .33 | 104 | 1.5 | 6.6 |
| 23 | 8.5 | 3.8 | 2.0 | 1.4 | 1.7 | 2.3 | 1.5 | .22 | .30 | 1.8 | 7.3 | .94 |
| 24 | 8.2 | 3.8 | 2.2 | 1.6 | 1.7 | 2.3 | 1.5 | .24 | .30 | .82 | 1.7 | .82 |
| 25 | 8.2 | 3.6 | 2.1 | 1.5 | 1.7 | 2.2 | 1.4 | .24 | .28 | 1.7 | 1.4 | .83 |
| 26 | 8.2 | 3.6 | 2.4 | 1.5 | 1.7 | 2.3 | 1.3 | .22 | .28 | 18 | 1.3 | .81 |
| 27 | 7.7 | 3.6 | 2.6 | 1.2 | 2.1 | 2.3 | 1.3 | .22 | .30 | 30 | 1.3 | .80 |
| 28 | 7.4 | 2.9 | 3.0 | 1.2 | 2.6 | 2.3 | 1.3 | .23 | .33 | .86 | 1.2 | .80 |
| 29 | 8.1 | 2.6 | 2.2 | 1.2 | --- | 2.3 | 1.2 | .23 | .35 | .70 | 1.2 | .79 |
| 30 | 7.4 | 2.3 | 1.9 | 1.2 | --- | 2.2 | 1.2 | .22 | .18 | 2.4 | 1.2 | .77 |
| 31 | 6.8 | --- | 2.0 | 1.5 | --- | 2.3 | --- | .23 | --- | 1.7 | 1.1 | --- |
| TOTAL | 2385.68 | 137.4 | 75.1 | 53.7 | 95.6 | 72.0 | 53.9 | 14.81 | 7.05 | 164.28 | 176.42 | 50.30 |
| MEAN | 77.0 | 4.58 | 2.42 | 1.73 | 3.41 | 2.32 | 1.80 | .48 | .24 | 5.30 | 5.69 | 1.68 |
| MAX | 1710 | 7.1 | 3.0 | 4.6 | 25 | 3.9 | 2.4 | 1.2 | .35 | 104 | 83 | 16 |
| MIN | .10 | 2.3 | 1.8 | 1.1 | 1.1 | 1.7 | 1.2 | .21 | .00 | .00 | .76 | .77 |
| AC-FT | 4730 | 273 | 149 | 107 | 190 | 143 | 107 | 29 | 14 | 326 | 350 | 100 |

CAL YR 1977 TOTAL 3026.62 MEAN 8.29 MAX 1710 MIN .04 AC-FT 6000
WTR YR 1978 TOTAL 3286.24 MEAN 9.00 MAX 1710 MIN .00 AC-FT 6520

## 09480500 SANTA CRUZ RIVER NEAR NOGALES, AZ

LOCATION.--Lat 31°20'40", long 110°51'03", in NW¼ sec.18, T.24 S., R.15 E. (unsurveyed), Santa Cruz County, Hydrologic Unit 15050301, in Spanish land grant of Maria Santisima del Carmen, on left bank 0.8 mi (1.3 km) downstream from international boundary and 5.5 mi (8.8 km) east of Nogales.

DRAINAGE AREA.--533 $mi^2$ (1,380 $km^2$), of which 348 $mi^2$ (901 $km^2$) is in Mexico.

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March to November 1907 and April 1909 to December 1912 (discharge measurements and fragmentary gage-height record), January 1913 to June 1922 (October 1915 to September 1916 monthly discharge only), May 1930 to December 1933, July 1935 to current year. Water-year estimates for 1913, 1915-16, 1920-22, 1930, 1934-35, published in WSP 1733.

REVISED RECORDS.--WSP 959: 1935(M). WSP 1213: 1915-16, 1930-32(M), 1934(M), 1936-37(M). WSP 1283: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 3,702.54 ft (1,128.534 m) National Geodetic Vertical Datum of 1929 (levels by International Boundary and Water Commission). Prior to June 30, 1922, nonrecording gage or water-stage recorder at various sites 5 to 6 mi (8 to 10 km) downstream at different datums.

REMARKS.--Records fair. Diversions above station of about 4,600 acre-ft/yr (5.67 $hm^3$/yr) for irrigation of about 2,300 acres (9.3 $km^2$) in Mexico. Diversion 19 mi (31 km) upstream for municipal supply of city of Nogales, Sonora, began in 1949; diversion in 1968 totaled 3,500 acre-ft/yr (4.32 $hm^3$/yr).

AVERAGE DISCHARGE.--59 years (water years 1913-22, 1930-78), 24.4 $ft^3$/s (0.691 $m^3$/s), 17,680 acre-ft/yr (21.8 $hm^3$/yr); median of yearly mean discharges, 19 $ft^3$/s (0.54 $m^3$/s), 13,800 acre-ft/yr (17.0 $hm^3$/yr).

EXTREMES FOR PERIOD OF 1930-78.--Maximum discharge, 31,000 $ft^3$/s (878 $m^3$/s) Oct. 9, 1977, gage height, 15.5 ft (4.72 m), from rating curve extended above 1,660 $ft^3$/s (47.0 $m^3$/s) on basis of slope-area measurement of peak flow; no flow at times in most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*) and peak discharges above base of 2,000 $ft^3$/s (57 $m^3$/s):

| Date | Time | Discharge ($ft^3$/s) | Discharge ($m^3$/s) | Gage height (ft) | Gage height (m) | Date | Time | Discharge ($ft^3$/s) | Discharge ($m^3$/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Oct. 8 | 1730 | 19,300 | 547 | 12.5 | 3.81 | Aug. 1 | 1730 | 4,480 | 127 | 7.52 | 2.292 |
| Oct. 9 | 1630 | *31,000 | 878 | 15.5 | 4.72 | Aug. 2 | 2030 | 2,830 | 80 | 6.61 | 2.015 |

No flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .00 | 44 | 25 | 15 | 15 | 600 | 31 | 15 | .30 | .00 | 466 | 2.2 |
| 2 | .10 | 40 | 24 | 15 | 14 | 740 | 25 | 15 | .30 | .00 | 535 | 3.5 |
| 3 | .10 | 39 | 24 | 16 | 14 | 346 | 25 | 12 | .30 | .00 | 414 | 2.5 |
| 4 | .10 | 38 | 24 | 17 | 13 | 196 | 28 | 9.0 | .20 | .00 | 199 | 3.9 |
| 5 | .10 | 37 | 23 | 17 | 13 | 165 | 34 | 8.0 | .20 | .00 | 98 | 102 |
| 6 | 8.1 | 37 | 22 | 17 | 16 | 210 | 31 | 7.7 | .20 | .00 | 52 | 33 |
| 7 | 214 | 39 | 22 | 18 | 16 | 245 | 32 | 8.0 | .20 | .00 | 37 | 5.1 |
| 8 | 10200 | 39 | 20 | 18 | 14 | 158 | 30 | 7.4 | .10 | .00 | 33 | 3.7 |
| 9 | 13200 | 38 | 20 | 18 | 14 | 127 | 34 | 7.0 | .10 | .00 | 27 | 6.7 |
| 10 | 1910 | 37 | 20 | 19 | 15 | 112 | 33 | 6.4 | .10 | 2.0 | 25 | 5.1 |
| 11 | 504 | 36 | 19 | 19 | 90 | 96 | 30 | 6.1 | .10 | .10 | 36 | 3.7 |
| 12 | 298 | 36 | 19 | 20 | 98 | 112 | 29 | 6.1 | .10 | .00 | 170 | 2.5 |
| 13 | 200 | 36 | 18 | 20 | 72 | 240 | 27 | 5.1 | .00 | .00 | 110 | 1.6 |
| 14 | 165 | 36 | 18 | 21 | 295 | 220 | 25 | 4.6 | .00 | .00 | 33 | 1.1 |
| 15 | 141 | 33 | 18 | 21 | 196 | 134 | 24 | 4.1 | .00 | .00 | 20 | .90 |
| 16 | 124 | 30 | 17 | 21 | 134 | 101 | 24 | 4.4 | .00 | .00 | 16 | .90 |
| 17 | 127 | 30 | 17 | 20 | 107 | 81 | 25 | 3.5 | .00 | .00 | 14 | 1.0 |
| 18 | 121 | 29 | 16 | 20 | 93 | 74 | 23 | 3.0 | .00 | .00 | 12 | .90 |
| 19 | 101 | 28 | 16 | 18 | 70 | 66 | 21 | 2.5 | .00 | 2.4 | 11 | 1.0 |
| 20 | 88 | 28 | 16 | 20 | 61 | 59 | 21 | 2.3 | .00 | .00 | 16 | 1.0 |
| 21 | 79 | 28 | 14 | 19 | 52 | 55 | 21 | 2.1 | .00 | .00 | 30 | 32 |
| 22 | 76 | 28 | 15 | 21 | 44 | 54 | 19 | 2.1 | .00 | 2.4 | 14 | 2.0 |
| 23 | 68 | 27 | 15 | 19 | 43 | 50 | 20 | 1.7 | .00 | 7.6 | 12 | 2.5 |
| 24 | 64 | 26 | 15 | 19 | 39 | 49 | 20 | 1.4 | .00 | .40 | 12 | 1.3 |
| 25 | 55 | 27 | 16 | 19 | 38 | 49 | 19 | 1.2 | .00 | .00 | 11 | 1.1 |
| 26 | 52 | 25 | 17 | 18 | 38 | 44 | 18 | 1.0 | .00 | 1.7 | 7.0 | 1.1 |
| 27 | 52 | 26 | 18 | 18 | 43 | 41 | 18 | .80 | .00 | 9.2 | 4.4 | .80 |
| 28 | 49 | 27 | 21 | 18 | 93 | 39 | 18 | .70 | .00 | .20 | 2.8 | .80 |
| 29 | 49 | 27 | 17 | 18 | --- | 40 | 17 | .50 | .00 | .00 | 3.0 | .80 |
| 30 | 49 | 25 | 16 | 18 | --- | 39 | 15 | .40 | .00 | .00 | 2.3 | .80 |
| 31 | 44 | --- | 17 | 18 | --- | 38 | --- | .30 | --- | 131 | 2.2 | --- |
| TOTAL | 28038.50 | 976 | 579 | 575 | 1750 | 4580 | 737 | 149.40 | 2.20 | 157.00 | 2424.7 | 225.50 |
| MEAN | 904 | 32.5 | 18.7 | 18.5 | 62.5 | 148 | 24.6 | 4.82 | .073 | 5.06 | 78.2 | 7.52 |
| MAX | 13200 | 44 | 25 | 21 | 295 | 740 | 34 | 15 | .30 | 131 | 535 | 102 |
| MIN | .00 | 25 | 14 | 15 | 13 | 38 | 15 | .30 | .00 | .00 | 2.2 | .80 |
| AC-FT | 55610 | 1940 | 1150 | 1140 | 3470 | 9080 | 1460 | 296 | 4.4 | 311 | 4810 | 447 |

CAL YR 1977 TOTAL 31568.60 MEAN 86.5 MAX 13200 MIN .00 AC-FT 62620
WTR YR 1978 TOTAL 40194.30 MEAN 110 MAX 13200 MIN .00 AC-FT 79730

09480500 SANTA CRUZ RIVER NEAR NOGALES, AZ--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1970 to current year.

REMARKS.--Records of temperature, specific conductance, and suspended-sediment concentration of individual samples available in district office at Tucson, Ariz.

MONTHLY AND ANNUAL SUMMARY OF SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| Month | Suspended-sediment discharge (tons) |
|---|---|
| October 1977 | 1,700,000 |
| November | 351 |
| December | 86.9 |
| January 1978 | 82.1 |
| February | 6,280 |
| March | 69,700 |
| April | 177 |
| May | 56.1 |
| June | 0.9 |
| July | 1,590 |
| August | 28,600 |
| September | 1,650 |
| Total for year | 1,808,574.0 |

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | TEMPER-ATURE (DEG C) | SEDI-MENT, SUS-PENDED (MG/L) | SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) | SED. SUSP. FALL DIAM. % FINER THAN .002 MM | SED. SUSP. FALL DIAM. % FINER THAN .004 MM | SED. SUSP. FALL DIAM. % FINER THAN .016 MM | SED. SUSP. FALL DIAM. % FINER THAN .062 MM | SED. SUSP. FALL DIAM. % FINER THAN .125 MM | SED. SUSP. FALL DIAM. % FINER THAN .250 MM |
|---|---|---|---|---|---|---|---|---|---|---|---|
| JUL | | | | | | | | | | | |
| 27... | 1000 | 10 | 21.0 | 25100 | 678 | 49 | 63 | 84 | 98 | 99 | 100 |
| 31... | 1000 | 50 | 21.0 | 24500 | 3310 | 46 | 60 | 83 | 98 | 100 | -- |

## 09481710 SANTA CRUZ RIVER AT RIO RICO, AZ

LOCATION.--Lat 31°28'13", long 110°59'30", in NW¼NW¼SW¼ sec.35, T.22 S., R.13 E., Santa Cruz County, Hydrologic Unit 15050301, in Spanish land grant of Luis Maria Baca (float No. 3), at bridge at community of Rio Rico, 1.6 mi (2.6 km) downstream from Sonoita Creek, 1.6 mi (2.6 km) northwest of site of abandoned settlement of Calabasas, 9 mi (14.5 km) north of Nogales, Ariz., and 16.5 mi (26.5 km) downstream from international boundary.

DRAINAGE AREA.--1,004 $mi^2$ (2,600 $km^2$).

PERIOD OF RECORD.--January 1976 to current year.

REMARKS.--Streamflow ungaged. Most low flow is effluent from Nogales International Sewage Treatment Plant located approximately 2.5 mi (4.0 km) upstream.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | TUR-BID-ITY (JTU) | OXYGEN, DIS-SOLVED (MG/L) | COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | | | | |
| 04... | 1300 | 30 | 560 | 8.4 | 20.0 | 1800 | 7.8 | 44000 | 130 | 0 | 41 | 7.6 |
| DEC | | | | | | | | | | | | |
| 02... | 1400 | 19 | 600 | 8.0 | 22.0 | 160 | 7.5 | 6200 | 200 | 26 | 63 | 10 |
| JAN | | | | | | | | | | | | |
| 26... | 1400 | 12 | 650 | 8.1 | 18.0 | -- | 7.2 | K430 | 210 | 38 | 65 | 11 |

| DATE | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | BICAR-BONATE (MG/L AS HCO3) | CAR-BONATE (MG/L AS CO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER AC-FT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | | | | |
| 04... | 72 | 2.7 | 6.2 | 220 | 1 | 54 | 29 | .6 | 34 | 349 | 368 | .47 |
| DEC | | | | | | | | | | | | |
| 02... | 43 | 1.3 | 6.9 | 210 | 0 | 68 | 28 | .5 | 36 | 359 | 381 | .49 |
| JAN | | | | | | | | | | | | |
| 26... | 48 | 1.5 | 8.0 | -- | -- | 86 | 31 | .5 | 33 | 398 | 385 | .54 |

| DATE | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) | NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO-GEN, NH4 + ORG. SUSP. TOTAL (MG/L AS N) | NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N) | NITRO-GEN, TOTAL (MG/L AS N) | PHOS-PHORUS, TOTAL (MG/L AS P) | PHOS-PHORUS, DIS-SOLVED (MG/L AS P) | PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | | | |
| 04... | 2.7 | 2.8 | .04 | -- | -- | -- | .35 | -- | 2.2 | .56 | .56 |
| DEC | | | | | | | | | | | |
| 02... | 3.9 | 3.9 | .04 | -- | -- | -- | .37 | -- | 2.0 | 1.5 | 1.4 |
| JAN | | | | | | | | | | | |
| 26... | 2.9 | -- | 2.8 | 5.7 | 8.5 | 4.7 | 3.8 | 11 | 1.4 | 1.3 | -- |

K Based on non-ideal colony count.

09481710 SANTA CRUZ RIVER AT RIO RICO, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) | BORON, TOTAL RECOV-ERABLE (UG/L AS B) | BORON, DIS-SOLVED (UG/L AS B) | CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) | IRON, TOTAL RECOV-ERABLE (UG/L AS FE) | IRON, DIS-SOLVED (UG/L AS FE) | LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) |
|---|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | | |
| 04... | 20 | 900 | 150 | 90 | 10 | 60 | 220 | 4500 | 60 | 91 |
| DEC | | | | | | | | | | |
| 02... | 10 | 200 | 110 | 90 | 2 | 20 | 39 | 11000 | 50 | 26 |
| JAN | | | | | | | | | | |
| 26... | 6 | 200 | 150 | -- | 4 | 10 | 20 | 5300 | -- | 28 |

| DATE | MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) | MANGA-NESE, DIS-SOLVED (UG/L AS MN) | MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) | SELE-NIUM, TOTAL (UG/L AS SE) | SILVER, TOTAL RECOV-ERABLE (UG/L AS AG) | ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) | CARBON, ORGANIC TOTAL (MG/L AS C) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS (UG/L) |
|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | |
| 04... | 2600 | 0 | .7 | 1 | 2 | 380 | -- | .00 | -- |
| DEC | | | | | | | | | |
| 02... | 670 | 0 | .0 | 0 | 2 | 50 | 10 | .00 | 2 |
| JAN | | | | | | | | | |
| 26... | 460 | -- | .0 | 3 | 0 | 60 | 13 | .00 | 3 |

## 09482000 SANTA CRUZ RIVER AT CONTINENTAL, AZ

LOCATION.--Lat 31°51'12", long 110°58'40", in NE¼NE¼ sec.23, T.18 S., R.13 E. (unsurveyed), Pima County, Hydrologic Unit 15050301, in Spanish land grant of San Ignacio de la Canoa, near left bank on downstream side of pier of highway bridge at Continental.

DRAINAGE AREA.--1,662 $mi^2$ (4,305 $km^2$), of which 395 $mi^2$ (1,023 $km^2$) is in Mexico.

PERIOD OF RECORD.--May 1940 to December 1946, October 1951 to current year.

REVISED RECORDS.--WSP 1283: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,832.28 ft (863.279 m) National Geodetic Vertical Datum of 1929. Prior to Sept. 8, 1965, at datum 4.07 ft (1.241 m) higher.

REMARKS.--Records poor. Irrigation above station of about 12,500 acres (50.6 $km^2$) including about 2,300 acres (9.3 $km^2$) in Mexico, mostly by pumping from ground water.

AVERAGE DISCHARGE.--33 years, 19.8 $ft^3/s$ (0.561 $m^3/s$), 14,350 acre-ft/yr (17.7 $hm^3/yr$); median of yearly mean discharges, 11 $ft^3/s$ (0.31 $m^3/s$), 8,000 acre-ft/yr (9.9 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 26,500 $ft^3/s$ (750 $m^3/s$) Oct. 9, 1977, gage height, 16.70 ft (5.090 m), from rating curve extended above 18,000 $ft^3/s$ or 510 $m^3/s$ on basis of velocity-area study and runoff comparison with downstream station; no flow for most of each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*), (from rating curve extended as explained above) and peak discharges above base of 2,000 $ft^3/s$ (57 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|
| Oct. 6 | 1530 | 2,710 | 76.7 | 6.68 | 2.036 |
| Oct. 9 | 1530 | *26,500 | 750 | 16.70 | 5.090 |
| June 28 | 2100 | 2,730 | 77.3 | 4.73 | 1.442 |
| July 25 | 2000 | 4,700 | 133 | 5.60 | 1.707 |
| July 27 | 0100 | 3,900 | 110 | 5.40 | 1.646 |
| Aug. 1 | 2030 | 5,900 | 167 | 6.11 | 1.862 |
| Aug. 11 | 1930 | 9,090 | 257 | 7.28 | 2.219 |

No flow for most of year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .00 | .00 | .00 | .00 | .00 | 340 | .00 | .00 | .00 | .00 | 820 | .00 |
| 2 | .00 | .00 | .00 | .00 | .00 | 1030 | .00 | .00 | .00 | .00 | 414 | .00 |
| 3 | .00 | .00 | .00 | .00 | .00 | 704 | .00 | .00 | .00 | .00 | 278 | .00 |
| 4 | 65 | .00 | .00 | .00 | .00 | 304 | .00 | .00 | .00 | .00 | 55 | .00 |
| 5 | 24 | .00 | .00 | .00 | .00 | 142 | .00 | .00 | .00 | .00 | .00 | .00 |
| 6 | 441 | .00 | .00 | .00 | .00 | 175 | .00 | .00 | .00 | .00 | .00 | .00 |
| 7 | 499 | .00 | .00 | .00 | .00 | 258 | .00 | .00 | .00 | .00 | .00 | .00 |
| 8 | 3810 | .00 | .00 | .00 | .00 | 158 | .00 | .00 | .00 | .00 | 87 | .00 |
| 9 | 13200 | .00 | .00 | .00 | .00 | 76 | .00 | .00 | .00 | .00 | .00 | .00 |
| 10 | 4720 | .00 | .00 | 2.9 | .10 | 36 | .00 | .00 | .00 | .00 | .00 | .00 |
| 11 | 450 | .00 | .00 | .80 | 137 | 12 | .00 | .00 | .00 | .00 | 715 | .00 |
| 12 | 190 | .00 | .00 | .00 | 358 | 7.7 | .00 | .00 | .00 | .00 | 28 | .00 |
| 13 | 10 | .00 | .00 | .00 | 280 | 236 | .00 | .00 | .00 | .00 | 6.4 | .00 |
| 14 | 1.0 | .00 | .00 | .00 | 289 | 325 | .00 | .00 | .00 | .00 | 2.6 | .00 |
| 15 | .00 | .00 | .00 | .00 | 539 | 200 | .00 | .00 | .00 | .00 | .00 | .50 |
| 16 | .00 | .00 | .00 | .00 | 258 | 70 | .00 | .00 | .00 | .00 | .00 | .40 |
| 17 | .00 | .00 | .00 | .00 | 102 | 10 | .00 | .00 | .00 | .00 | .00 | .00 |
| 18 | .00 | .00 | .00 | .00 | 20 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 19 | .00 | .00 | .00 | .00 | 1.0 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 20 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 21 | .00 | .00 | .00 | 93 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 22 | .00 | .00 | .00 | 95 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 23 | .00 | .00 | .00 | 1.3 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 24 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 25 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 241 | .00 | .00 |
| 26 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 157 | .00 | .00 |
| 27 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 450 | .00 | .00 |
| 28 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 180 | 1.0 | .00 | .00 |
| 29 | .00 | .00 | .00 | .00 | --- | .00 | .00 | .00 | 5.3 | .00 | .00 | .00 |
| 30 | .00 | .00 | .00 | .00 | --- | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 31 | .00 | --- | .00 | .00 | --- | .00 | --- | .00 | --- | .00 | .00 | --- |
| TOTAL | 23410.00 | .00 | .00 | 193.00 | 1984.10 | 4083.70 | .00 | .00 | 185.30 | 849.00 | 2406.00 | .90 |
| MEAN | 755 | .000 | .000 | 6.23 | 70.9 | 132 | .000 | .000 | 6.18 | 27.4 | 77.6 | .030 |
| MAX | 13200 | .00 | .00 | 95 | 539 | 1030 | .00 | .00 | 180 | 450 | 820 | .50 |
| MIN | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| AC-FT | 46430 | .00 | .00 | 383 | 3940 | 8100 | .00 | .00 | 368 | 1680 | 4770 | 1.8 |

CAL YR 1977 TOTAL 26571.50 MEAN 72.8 MAX 13200 MIN .00 AC-FT 52700
WTR YR 1978 TOTAL 33112.00 MEAN 90.7 MAX 13200 MIN .00 AC-FT 65680

## 09482400 AIRPORT WASH AT TUCSON, AZ

LOCATION.--Lat 32°09'09", long 110°58'52", in NE¼SE¼ sec.2, T.15 S., R.13 E., Pima County, Hydrologic Unit 15050301, 25 ft (7.6 m) upstream from Santa Clara Avenue, 0.7 mi (1.1 km) upstream from mouth, 4.3 mi (6.9 km) downstream from confluence of North and South Forks, and 4.9 mi (7.9 km) south of city hall in Tucson.

DRAINAGE AREA.--23.0 $mi^2$ (59.6 $km^2$).

PERIOD OF RECORD.--September 1965 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 2,460 ft (750 m), from topographic map. Prior to July 1, 1974, at site 1.8 mi (2.9 km) upstream at different datum.

REMARKS.--Records poor.

AVERAGE DISCHARGE.--13 years, 0.41 $ft^3/s$ (0.012 $m^3/s$), 296 acre-ft/yr (365,000 $m^3/yr$); median of yearly mean discharges, 0.34 $ft^3/s$ (0.010 $m^3/s$), 250 acre-ft/yr (310,000 $m^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 896 $ft^3/s$ (25.4 $m^3/s$) Sept. 25, 1976, gage height, 2.64 ft (0.805 m), from rating curve extended above 60 $ft^3/s$ (1.7 $m^3/s$) on basis of critical-depth computations; no flow for most of each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*) and peak discharges above base of 150 $ft^3/s$ (4.2 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|
| Aug. 11 | 2030 | 160 | 4.53 | 1.66 | .506 |
| Sept. 21 | 1745 | *405 | 11.5 | 2.08 | .634 |

No flow for most of the year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 2 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 3 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 4 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 5 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 6 | 8.3 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 7 | .30 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 9 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 10 | .00 | .00 | .00 | .20 | .02 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 11 | .00 | .00 | .00 | .10 | 1.3 | .00 | .00 | .00 | .00 | .00 | 8.3 | .00 |
| 12 | .00 | .00 | .00 | .00 | .00 | .20 | .00 | .00 | .00 | .00 | .30 | .00 |
| 13 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 14 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 15 | .00 | .00 | .00 | 2.5 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 16 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 17 | .00 | .00 | .00 | .80 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 18 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 19 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 20 | .00 | .00 | .00 | .30 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 21 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 24 |
| 22 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .10 |
| 23 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 24 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 3.0 | .00 |
| 25 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 26 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 27 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 28 | .00 | .00 | 1.6 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 29 | .00 | .00 | .00 | .00 | --- | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 30 | .00 | .00 | .00 | .00 | --- | .00 | .00 | .00 | .00 | .10 | .00 | .00 |
| 31 | .00 | --- | .00 | .00 | --- | .00 | --- | .00 | --- | .00 | .00 | --- |
| TOTAL | 8.60 | .00 | 1.60 | 3.90 | 1.32 | .20 | .00 | .00 | .00 | .10 | 11.60 | 24.10 |
| MEAN | .28 | .000 | .052 | .13 | .047 | .006 | .000 | .000 | .000 | .003 | .37 | .80 |
| MAX | 8.3 | .00 | 1.6 | 2.5 | 1.3 | .20 | .00 | .00 | .00 | .10 | 8.3 | 24 |
| MIN | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| AC-FT | 17 | .00 | 3.2 | 7.7 | 2.6 | .4 | .00 | .00 | .00 | .2 | 23 | 48 |

CAL YR 1977 TOTAL 48.58 MEAN .13 MAX 13 MIN .00 AC-FT 96
WTR YR 1978 TOTAL 51.42 MEAN .14 MAX 24 MIN .00 AC-FT 102

## 09482500 SANTA CRUZ RIVER AT TUCSON, AZ

LOCATION.--Lat 32°13'16", long 110°58'52", in NE¼NE¼ sec.14, T.14 S., R.13 E., Pima County, Hydrologic Unit 15050301, on downstream side of center pier of Congress Street Bridge in Tucson.

DRAINAGE AREA.--2,222 $mi^2$ (5,755 $km^2$), of which 395 $mi^2$ (1,023 $km^2$) is in Mexico, adjusted for 15.2 $mi^2$ (39.4 $km^2$) of Tucson Arroyo drainage area contributing to this station effective July 1956.

PERIOD OF RECORD.--October 1905 to current year (monthly discharge only, January 1907 to September 1912, January to September 1914).

REVISED RECORDS.--WSP 859: 1915(M). WSP 1283: Drainage area. WSP 1313: 1939(M).

GAGE.--Water-stage recorder, and, since June 27, 1978, crest-stage gage. Datum of gage is 2,317.82 ft (706.472 m) National Geodetic Vertical Datum of 1929. Prior to Nov. 27, 1929, nonrecording gages or reference points for measuring to water surface at various places on bridge at same site and various datums. Nov. 27, 1929, to Oct. 27, 1970, water-stage recorder at present site: at datum 9.08 ft (2.768 m) higher Nov. 27, 1929, to June 18, 1958; at datum 5.08 ft (1.548 m) higher June 18, 1958, to May 21, 1963; at datum 0.62 ft (0.189 m) lower May 21, 1963, to Oct. 27, 1970. No gage Oct. 27, 1970, to Oct. 1, 1971, and Oct. 10, 1977, to Feb. 14, 1979.

REMARKS.--Records poor. Irrigation above station of about 26,000 acres (105 $km^2$), including about 2,300 acres (9.31 $km^2$) in Mexico, mostly by pumping from ground water. Ground water is also pumped above the station for municipal supply and mining. Since October 1969 all flow past station is published, including waste water when known.

AVERAGE DISCHARGE.--73 years, 21.9 $ft^3/s$ (0.620 $m^3/s$), 15,870 acre-ft/yr (19.6 $hm^3/yr$); median of yearly mean discharges, 14 $ft^3/s$ (0.40 $m^3/s$), 10,100 acre-ft/yr (12 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 23,700 $ft^3/s$ (671 $m^3/s$) Oct. 10, 1977, gage height, 21.8 ft (6.64 m), from floodmarks, from rating curve extended above 4,000 $ft^3/s$ (113 $m^3/s$) on basis of slope-area measurement of peak flow; no flow for most of each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*), (from rating curve extended above 4,000 $ft^3/s$ or 113 $m^3/s$ on basis of slope area measurement of peak flow) and peak discharges above base of 1,700 $ft^3/s$ (48 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|
| Oct. 10 | 0100† | *23,700 | 671 | 21.8‡ | 6.64 |
| Aug. 2 | 0200 | 5,030 | 142 | 7.35 | 2.240 |
| Aug. 12 | 0100 | 2,260 | 64.0 | 6.25 | 1.905 |

No flow for many days.
† About
‡ From floodmarks

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .00 | .00 | .00 | .00 | .00 | 178 | .00 | 6.8 | .00 | .00 | 32 | .00 |
| 2 | .00 | .00 | .00 | .00 | .00 | 1090 | .00 | .00 | .00 | .00 | 1040 | .00 |
| 3 | .00 | .00 | .00 | .00 | .00 | 654 | .00 | .00 | .00 | .00 | 16 | .00 |
| 4 | .00 | .00 | .00 | .00 | .00 | 220 | .00 | .00 | .00 | .00 | 206 | .00 |
| 5 | .00 | .00 | .00 | .00 | .00 | 50 | .00 | .00 | .00 | .00 | .10 | .90 |
| 6 | 800 | .00 | .00 | .00 | .00 | 43 | .00 | 28 | .00 | .00 | .00 | .00 |
| 7 | 650 | .00 | .00 | .00 | .00 | 145 | .00 | 1.2 | .00 | .00 | .00 | .00 |
| 8 | 530 | .00 | .00 | .00 | .00 | 99 | .00 | .00 | .00 | 1.4 | 4.0 | .00 |
| 9 | 6360 | .00 | .00 | .00 | .00 | 18 | .00 | .00 | .00 | .00 | 1.2 | .00 |
| 10 | 11200 | .00 | .00 | 100 | 5.0 | 24 | .00 | .00 | .00 | 120 | .00 | .00 |
| 11 | 700 | .00 | .00 | 20 | 100 | 14 | .00 | .00 | .00 | .00 | 21 | .00 |
| 12 | 100 | .00 | .00 | .00 | 400 | 64 | .00 | .00 | .00 | .00 | 225 | .00 |
| 13 | 3.0 | .00 | .00 | .00 | 250 | 153 | .00 | .00 | .00 | .00 | .10 | .00 |
| 14 | 1.0 | .00 | .00 | .00 | 250 | 175 | .00 | .00 | .00 | .00 | .00 | .00 |
| 15 | .00 | .00 | .00 | 500 | 483 | 154 | .00 | .00 | .00 | .00 | .00 | .00 |
| 16 | .00 | .00 | .00 | 20 | 277 | 81 | .00 | .00 | .00 | .00 | .00 | .00 |
| 17 | .00 | .00 | .00 | 60 | 55 | 14 | .00 | .00 | .00 | 3.5 | 2.2 | .00 |
| 18 | .00 | .00 | .00 | 10 | 11 | .00 | .00 | .00 | .00 | .40 | .00 | .00 |
| 19 | .00 | .00 | .00 | .00 | 1.7 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 20 | .00 | .00 | .00 | 5.0 | .00 | .00 | .00 | .00 | .00 | 30 | .00 | .00 |
| 21 | .00 | .00 | .00 | 50 | .00 | .00 | .00 | .00 | .00 | .10 | .00 | 38 |
| 22 | .00 | .00 | .00 | 50 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 4.6 |
| 23 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 24 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .50 | .00 |
| 25 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 3.3 | .50 | .00 |
| 26 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 35 | .00 | .00 |
| 27 | .00 | .00 | 20 | .00 | .00 | .00 | .00 | .00 | 8.7 | 248 | .00 | .00 |
| 28 | .00 | .00 | 100 | .00 | 1.6 | .00 | .00 | .00 | .00 | .30 | .00 | .00 |
| 29 | .00 | .00 | .00 | .00 | --- | .00 | .00 | .00 | 114 | .00 | .00 | .00 |
| 30 | .00 | .00 | .00 | .00 | --- | .00 | .00 | .00 | 17 | 60 | .00 | .00 |
| 31 | .00 | --- | .00 | .00 | --- | .00 | --- | .00 | --- | 70 | .00 | --- |
| TOTAL | 20344.00 | .00 | 120.00 | 815.00 | 1854.30 | 3176.00 | .00 | 36.00 | 139.70 | 572.00 | 1548.60 | 43.50 |
| MEAN | 656 | .000 | 3.87 | 26.3 | 65.5 | 102 | .000 | 1.16 | 4.66 | 18.5 | 50.0 | 1.45 |
| MAX | 11200 | .00 | 100 | 500 | 483 | 1090 | .00 | 28 | 114 | 248 | 1040 | 38 |
| MIN | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| AC-FT | 40350 | .00 | 238 | 1620 | 3640 | 6300 | .00 | 71 | 277 | 1130 | 3070 | 86 |

CAL YR 1977 TOTAL 23035.50 MEAN 63.1 MAX 11200 MIN .00 AC-FT 45690
WTR YR 1978 TOTAL 28629.10 MEAN 78.4 MAX 11200 MIN .00 AC-FT 56790

## 09482950 RAILROAD WASH AT TUCSON, AZ

LOCATION.--Lat 32°12'48", long 110°56'45", in SE¼NE¼ sec.18, T.14 S., R.14 E., Pima County, Hydrologic Unit 15050301, on right bank 200 ft (61 m) upstream from Winsett Street in Tucson.

DRAINAGE AREA.--1.9 $mi^2$ (4.9 $km^2$).

PERIOD OF RECORD.--October 1975 to current year.

GAGE.--Water-stage recorder and concrete flume. Altitude of gage is 2,430 ft (741 m), from topographic map.

COOPERATION.--Records furnished by Water Resources Research Center, University of Arizona.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 312 $ft^3/s$ (8.84 $m^3/s$) July 11, 1976, gage height, 3.15 ft (0.960 m); no flow most of each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*) and peak discharges above base of 100 $ft^3/s$ (2.8 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) | Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Oct. 6 | 1300 | *223 | 6.32 | 3.42 | 1.042 | Dec. 28 | 0825 | 163 | 4.62 | 2.94 | 0.896 |
| Oct. 9 | 0700 | 128 | 3.62 | 2.65 | 0.808 | Aug. 4 | 1935 | 180 | 5.10 | 3.08 | 0.939 |

No flow for most of year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .00 | .00 | .00 | .00 | 6.1 | .80 | .00 | .04 | .00 | .00 | .00 | .00 |
| 2 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 3 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 4 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 7.2 | .00 |
| 5 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .12 | .00 |
| 6 | 16 | .16 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 7 | 5.5 | .18 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 8 | .12 | .00 | .00 | .00 | .00 | .00 | .00 | 1.0 | .00 | 1.0 | .00 | .00 |
| 9 | 6.9 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 10 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 11 | .00 | .00 | .00 | .00 | 2.2 | .00 | .00 | .00 | .00 | .00 | 5.1 | .00 |
| 12 | .00 | .00 | .00 | .00 | 5.5 | 1.3 | .00 | .00 | .00 | .00 | 3.7 | .00 |
| 13 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 14 | .00 | .00 | .00 | .00 | .44 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 15 | .00 | .00 | .00 | 13 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 16 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 17 | .00 | .00 | .00 | 2.6 | .00 | .00 | .00 | .00 | .00 | .00 | 1.3 | .00 |
| 18 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 19 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 20 | .00 | .00 | .00 | .29 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 21 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .70 |
| 22 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 23 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 24 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 25 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 2.8 | .00 | .00 |
| 26 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 27 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 28 | .00 | .00 | 16 | .00 | .85 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 29 | 5.0 | .00 | .00 | .00 | --- | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 30 | .00 | .00 | .00 | .00 | --- | .00 | .00 | .00 | .00 | 3.1 | .00 | .00 |
| 31 | .00 | --- | .00 | .00 | --- | .00 | --- | .00 | --- | .72 | .00 | --- |
| TOTAL | 33.52 | .34 | 16.00 | 15.89 | 15.09 | 2.10 | .00 | 1.04 | .00 | 7.62 | 17.42 | .70 |
| MEAN | 1.08 | .011 | .52 | .51 | .54 | .068 | .000 | .034 | .000 | .25 | .56 | .023 |
| MAX | 16 | .18 | 16 | 13 | 6.1 | 1.3 | .00 | 1.0 | .00 | 3.1 | 7.2 | .70 |
| MIN | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| AC-FT | 66 | .7 | 32 | 32 | 30 | 4.2 | .00 | 2.1 | .00 | 15 | 35 | 1.4 |

CAL YR 1977 TOTAL 116.06 MEAN .32 MAX 20 MIN .00 AC-FT 230
WTR YR 1978 TOTAL 109.72 MEAN .30 MAX 16 MIN .00 AC-FT 218

NOTE.--No gage-height record Aug. 18 to Sept. 22.

## 09483000 TUCSON ARROYO AT VINE AVENUE, TUCSON, AZ

LOCATION.--Lat 32°13'00", long 110°56'54", in SW¼NE¼ sec.18, T.14 S., R.14 E., Pima County, Hydrologic Unit 15050301, on right bank at Vine Avenue in Tucson, 0.2 mi (0.3 km) downstream from Arroyo Chico.

DRAINAGE AREA.--8.2 $mi^2$ (21.2 $km^2$) since June 1956. Prior to August 1945, 27.0 $mi^2$ (69.9 $km^2$). See WSP 1733 for history of progressive reduction of drainage area by flood-control diversion structures.

PERIOD OF RECORD.--June 1944 to current year.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 2,411.9 ft (735.15 m) National Geodetic Vertical Datum of 1929 (city of Tucson bench mark).

REMARKS.--Records fair. A flood-control project, at upper end of natural basin, diverts runoff from 3.6 $mi^2$ (9.3 $km^2$) into Lakeside Reservoir (Atterbury) which is in Pantano Wash drainage area. Another flood-control project diverts runoff from 15.2 $mi^2$ (39.4 $km^2$) near the upper end of basin into a flood-control detention reservoir in SE¼ sec.29, T.14 S., R.14 E., from which reservoir water is released to Julian Wash, which enters Santa Cruz River upstream from Tucson Arroyo. Since October 1969, all flow past the station is published.

AVERAGE DISCHARGE.--8 years (water years 1945-52), 0.68 $ft^3/s$ (0.019 $m^3/s$), 493 acre-ft/yr (608,000 $m^3/yr$), representing flow from 23.4 $mi^2$ (60.6 $km^2$); 22 years (water years 1957-78), 0.89 $ft^3/s$ (0.025 $m^3/s$), 645 acre-ft/yr (795,000 $m^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,000 $ft^3/s$ (142 $m^3/s$) Aug. 22, 1961, gage height, 10.35 ft (3.155 m), from rating curve extended above 2,100 $ft^3/s$ (60 $m^3/s$) on basis of slope-area measurements at gage heights 10.13 and 10.35 ft (3.088 and 3.155 m); no flow for most of each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*) and peak discharges above base of 300 $ft^3/s$ (8.5 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) | Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Oct. 6 | 1300 | *764 | 21.6 | 6.45 | 1.966 | July 25 | Unknown | 396 | 11.2 | 5.53 | 1.686 |
| Oct. 9 | 0700 | 402 | 11.4 | 5.48 | 1.670 | July 30 | 2200 | 619 | 17.5 | 6.10 | 1.859 |
| Dec. 28 | 0845 | 734 | 20.8 | 6.38 | 1.945 | Aug. 4 | 1945 | 639 | 18.1 | 6.15 | 1.875 |
| Jan. 15 | 0900 | 390 | 11.0 | 5.51 | 1.679 | Sept. 21 | 1645 | 551 | 15.6 | 5.93 | 1.807 |
| Feb. 1 | 0215 | 340 | 9.63 | 5.36 | 1.634 | | | | | | |

No flow for most of year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .00 | .00 | .00 | .00 | 15 | 9.6 | .00 | .44 | .00 | .00 | .00 | .00 |
| 2 | .00 | .00 | .00 | .00 | .00 | .30 | .00 | .01 | .00 | .00 | .00 | .00 |
| 3 | .00 | .00 | .00 | .00 | .00 | .93 | .00 | .00 | .00 | .00 | .00 | .00 |
| 4 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 26 | .00 |
| 5 | .00 | .00 | .00 | .00 | .00 | .51 | .00 | .00 | .00 | .00 | 1.1 | .00 |
| 6 | 46 | .73 | .00 | .00 | .00 | 1.7 | .00 | 6.7 | .00 | .00 | .00 | .00 |
| 7 | 17 | 1.3 | .00 | .00 | .00 | .00 | .00 | .20 | .00 | .00 | .00 | .00 |
| 8 | .67 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 3.6 | .00 | .00 |
| 9 | 24 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 1.3 | .00 | .00 |
| 10 | .00 | .00 | .00 | 19 | .00 | .29 | .00 | .00 | .00 | .00 | .00 | .00 |
| 11 | .00 | .00 | .00 | 11 | 3.0 | .06 | .00 | .00 | .00 | .00 | 8.2 | .00 |
| 12 | .00 | .00 | .00 | .00 | 7.0 | 7.8 | .00 | .00 | .00 | .00 | 4.8 | .00 |
| 13 | .00 | .00 | .00 | .00 | .00 | .65 | .00 | .00 | .00 | .00 | .30 | .00 |
| 14 | .00 | .00 | .00 | .00 | 1.0 | .00 | .00 | .00 | .00 | .32 | .00 | .00 |
| 15 | .00 | .00 | .00 | 68 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 16 | .00 | .00 | .00 | .12 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 17 | .00 | .00 | .00 | 14 | .00 | .00 | .00 | .00 | .00 | .00 | 8.4 | .00 |
| 18 | .00 | .00 | .00 | .26 | .00 | .00 | .00 | .00 | .00 | .00 | .01 | .00 |
| 19 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 20 | .00 | .00 | .00 | 5.9 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 21 | .00 | .00 | .00 | .16 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 35 |
| 22 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .06 |
| 23 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 24 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 25 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 15 | .00 | .00 |
| 26 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 27 | .00 | .00 | .67 | .00 | .00 | .00 | .00 | .00 | .59 | .00 | .00 | .00 |
| 28 | .00 | .00 | 72 | .00 | 3.8 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 29 | 4.3 | .00 | .00 | .00 | --- | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 30 | .00 | .00 | .00 | .27 | --- | .00 | .00 | .00 | .00 | 24 | .00 | .00 |
| 31 | .00 | --- | .00 | .00 | --- | .00 | --- | .00 | --- | 1.7 | .00 | --- |
| TOTAL | 91.97 | 2.03 | 72.67 | 118.71 | 29.80 | 21.84 | .00 | 7.35 | .59 | 45.92 | 48.81 | 35.06 |
| MEAN | 2.97 | .068 | 2.34 | 3.83 | 1.06 | .70 | .000 | .24 | .020 | 1.48 | 1.57 | 1.17 |
| MAX | 46 | 1.3 | 72 | 68 | 15 | 9.6 | .00 | 6.7 | .59 | 24 | 26 | 35 |
| MIN | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| AC-FT | 182 | 4.0 | 144 | 235 | 59 | 43 | .00 | 15 | 1.2 | 91 | 97 | 70 |

CAL YR 1977 TOTAL 372.16 MEAN 1.02 MAX 73 MIN .00 AC-FT 738
WTR YR 1978 TOTAL 474.75 MEAN 1.30 MAX 72 MIN .00 AC-FT 942

## 09483010 HIGH SCHOOL WASH AT TUCSON, AZ

LOCATION.--Lat 32°13'28", long 110°56'48", in SE¼SE¼ sec.7, T.14 S., R.14 E., Pima County, Hydrologic Unit 15050301, on right bank 200 ft (61 m) upstream from Cherry Avenue in Tucson.

DRAINAGE AREA.--0.95 $mi^2$ (2.46 $km^2$).

PERIOD OF RECORD.--October 1973 to current year.

GAGE.--Water-stage recorder and concrete flume Altitude of gage is 2,415 ft (736 m), from topographic map.

REMARKS.--Entire drainage basin is an urban residential area.

AVERAGE DISCHARGE.--5 years, 0.084 $ft^3/s$ (0.002 $m^3/s$), 60.9 acre-ft/yr (75,100 $m^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 195 $ft^3/s$ (5.52 $m^3/s$) July 16, 1975, gage height, 3.21 ft (0.978 m); no flow most of each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*) and peak discharges above base of 50 $ft^3/s$ (1.4 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) | Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Oct. 7 | 1900 | *178 | 5.04 | 3.06 | 0.933 | July 30 | 2230 | 111 | 3.14 | 2.38 | 0.725 |
| Oct. 9 | 0630 | 88 | 2.49 | 2.10 | 0.640 | Aug. 11 | 0145 | 74 | 2.10 | 1.92 | 0.585 |
| Feb. 1 | 0200 | 87 | 2.46 | 2.09 | 0.637 | Aug. 17 | 2100 | 89 | 2.52 | 2.12 | 0.646 |

No flow for most of year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .00 | .00 | .00 | .00 | 2.4 | .92 | .00 | .06 | .00 | .00 | .00 | .00 |
| 2 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 3 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 4 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .05 | .00 |
| 5 | .00 | .00 | .00 | .00 | .00 | .14 | .00 | .00 | .00 | .00 | .00 | .00 |
| 6 | .91 | .34 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 7 | 6.8 | .29 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .01 | .00 |
| 8 | 1.4 | .00 | .00 | .00 | .02 | .00 | .01 | .00 | .00 | .58 | .16 | .00 |
| 9 | 2.4 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .04 | .00 | .00 |
| 10 | .00 | .00 | .00 | 2.7 | .00 | .03 | .00 | .00 | .00 | .00 | .00 | .00 |
| 11 | .00 | .00 | .00 | .30 | 1.7 | .99 | .00 | .00 | .00 | .00 | 2.0 | .00 |
| 12 | .00 | .00 | .00 | .00 | 2.2 | .00 | .00 | .00 | .00 | .00 | .09 | .00 |
| 13 | .00 | .00 | .00 | .00 | .05 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 14 | .00 | .00 | .00 | .00 | .39 | .00 | .00 | .00 | .00 | .18 | .00 | .00 |
| 15 | .00 | .00 | .00 | 3.4 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 16 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 17 | .00 | .00 | .00 | 1.9 | .00 | .00 | .00 | .00 | .00 | .00 | 3.0 | .00 |
| 18 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 19 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 20 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 21 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 22 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .05 | .00 |
| 23 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 24 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 25 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .78 | .00 | .00 |
| 26 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 27 | .00 | .00 | 3.2 | .00 | .00 | .00 | .00 | .00 | .61 | .00 | .00 | .00 |
| 28 | .00 | .00 | .79 | .00 | .68 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 29 | .25 | .00 | .00 | .00 | --- | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 30 | .00 | .00 | .00 | .07 | --- | .00 | .00 | .00 | .00 | 4.2 | .00 | .00 |
| 31 | .00 | --- | .00 | .00 | --- | .00 | --- | .00 | --- | .03 | .00 | --- |
| TOTAL | 11.76 | .63 | 3.99 | 8.37 | 7.44 | 2.08 | .01 | .06 | .61 | 5.81 | 5.36 | .00 |
| MEAN | .38 | .021 | .13 | .27 | .27 | .067 | .000 | .002 | .020 | .19 | .17 | .000 |
| MAX | 6.8 | .34 | 3.2 | 3.4 | 2.4 | .99 | .01 | .06 | .61 | 4.2 | 3.0 | .00 |
| MIN | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| AC-FT | 23 | 1.2 | 7.9 | 17 | 15 | 4.1 | .02 | .1 | 1.2 | 12 | 11 | .00 |

CAL YR 1977 TOTAL 30.66 MEAN .084 MAX 6.8 MIN .00 AC-FT 61
WTR YR 1978 TOTAL 46.12 MEAN .13 MAX 6.8 MIN .00 AC-FT 91

NOTE.--No gage-height record Nov. 23 to Dec. 25.

## 09485390 ATTERBURY WASH TRIBUTARY AT TUCSON, AZ

LOCATION.--Lat 32°11'09", long 110°49'17", in SW¼NW¼ sec.28, T.14 S., R.15 E., Pima County, Hydrologic Unit 15050302, on left bank 500 ft (150 m) downstream from Stella Road in Tucson.

DRAINAGE AREA.--5.13 $mi^2$ (13.29 $km^2$).

PERIOD OF RECORD.--October 1975 to current year.

GAGE.--Water-stage recorder and concrete flume. Altitude of gage is 2,710 ft (826 m), from topographic map.

COOPERATION.--Records furnished by Water Resources Research Center, University of Arizona.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 390 $ft^3/s$ (11.0 $m^3/s$) Aug. 11, 1977, gage height, 3.70 ft (1.128 m); no flow most of each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 87 $ft^3/s$ (2.46 $m^3/s$) Dec. 28, gage height, 1.78 ft (0.542 m), base discharge, 50 $ft^3/s$ (1.4 $m^3/s$); no flow for most of year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .00 | .00 | .00 | .00 | .34 | .82 | .00 | .02 | .00 | .00 | .00 | .00 |
| 2 | .00 | .00 | .00 | .00 | .00 | .26 | .00 | .00 | .00 | .00 | .00 | .00 |
| 3 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 4 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 5 | .00 | .00 | .00 | .00 | .00 | .18 | .00 | .00 | .00 | .00 | .00 | .00 |
| 6 | 1.7 | .05 | .00 | .00 | .00 | .00 | .00 | .88 | .00 | .00 | .00 | .00 |
| 7 | 9.0 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 8 | 1.0 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .49 | .00 | .00 |
| 9 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 10 | .00 | .00 | .00 | 2.2 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 11 | .00 | .00 | .00 | .29 | 1.1 | .00 | .00 | .00 | .00 | .08 | .00 | .00 |
| 12 | .00 | .00 | .00 | .00 | 6.2 | 2.6 | .00 | .00 | .00 | .00 | .00 | .00 |
| 13 | .00 | .00 | .00 | .00 | .01 | .68 | .00 | .00 | .00 | .00 | .00 | .00 |
| 14 | .00 | .00 | .00 | .00 | 2.0 | .00 | .00 | .00 | .00 | .61 | .00 | .00 |
| 15 | .00 | .00 | .00 | 12 | .85 | .00 | .00 | .00 | .00 | .48 | .00 | .00 |
| 16 | .00 | .00 | .00 | .41 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 17 | .00 | .00 | .00 | 1.6 | .00 | .00 | .00 | .00 | .00 | .07 | .05 | .00 |
| 18 | .00 | .00 | .00 | .17 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 19 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 20 | .00 | .00 | .00 | .44 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 21 | .00 | .00 | .00 | .44 | .00 | .00 | .00 | .00 | .00 | .27 | .00 | .00 |
| 22 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 23 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 24 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 25 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 2.0 | .00 | .00 |
| 26 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 27 | .00 | .00 | .25 | .00 | .00 | .00 | .00 | .00 | .07 | .00 | .00 | .00 |
| 28 | .00 | .00 | 7.8 | .00 | .80 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 29 | .00 | .00 | .09 | .00 | --- | .00 | .00 | .00 | .14 | .00 | .00 | .00 |
| 30 | .00 | .00 | .00 | .00 | --- | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 31 | .00 | --- | .00 | .00 | --- | .00 | --- | .00 | --- | .00 | .00 | --- |
| TOTAL | 11.70 | .05 | 8.14 | 17.55 | 11.30 | 4.54 | .00 | .90 | .21 | 4.00 | .05 | .00 |
| MEAN | .38 | .002 | .26 | .57 | .40 | .15 | .000 | .029 | .007 | .13 | .002 | .000 |
| MAX | 9.0 | .05 | 7.8 | 12 | 6.2 | 2.6 | .00 | .88 | .14 | 2.0 | .05 | .00 |
| MIN | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| AC-FT | 23 | .10 | 16 | 35 | 22 | 9.0 | .00 | 1.8 | .4 | 7.9 | .10 | .00 |

CAL YR 1977 TOTAL 68.63 MEAN .19 MAX 15 MIN .00 AC-FT 136
WTR YR 1978 TOTAL 58.44 MEAN .16 MAX 12 MIN .00 AC-FT 116

NOTE.--No gage-height record Aug. 18 to Sept. 30.

## 09485550 (revised) ARCADIA WASH AT TUCSON, AZ

LOCATION.--Lat 32°14'37", long 110°53'05", in SE¼NW¼ sec.2, T.14 S., R.14 E., Pima County, Hydrologic Unit 15050302, on right bank 150 ft (46 m) downstream from Pima Street in Tucson.

DRAINAGE AREA.--3.49 $mi^2$ (9.04 $km^2$).

PERIOD OF RECORD.--October 1975 to current year.

GAGE.--Water-stage recorder and concrete flume. Altitude of gage is 2,485 ft (757 m), from topographic map.

REMARKS.--Entire drainage basin is an urban, residential area.

COOPERATION.--Records furnished by Water Resources Research Center, University of Arizona.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 661 $ft^3/s$ (18.7 $m^3/s$) Sept. 21, 1978, gage height, 4.75 ft (1.448 m); no flow most of each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*) and peak discharges above base of 100 $ft^3/s$ (2.8 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) | Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Dec. 28 | 0530 | 142 | 4.02 | 2.08 | 0.634 | Aug. 17 | 1600 | 277 | 7.84 | 3.00 | 0.914 |
| July 8 | 2030 | 182 | 5.15 | 2.39 | 0.728 | Sept. 21 | 1600 | *661 | 18.7 | 4.75 | 1.448 |
| July 25 | 1530 | 595 | 16.9 | 4.50 | 1.372 | | | | | | |

No flow for most of year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .00 | .00 | .00 | .00 | 1.1 | 2.2 | .00 | .00 | .00 | .00 | .00 | .00 |
| 2 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 3 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 4 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 1.8 | .00 |
| 5 | .00 | .00 | .00 | .00 | .00 | .04 | .00 | .00 | .00 | .00 | .13 | .00 |
| 6 | 1.4 | .00 | .00 | .00 | .00 | .00 | .00 | .99 | .00 | .00 | .00 | .00 |
| 7 | 1.5 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 7.2 | .00 | .00 |
| 9 | 2.4 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .01 | .00 | .00 |
| 10 | .00 | .00 | .00 | 6.2 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 11 | .00 | .00 | .00 | .00 | 2.6 | .02 | .00 | .00 | .00 | .00 | .83 | .00 |
| 12 | .00 | .00 | .00 | .00 | 7.2 | 2.1 | .00 | .00 | .00 | .00 | .04 | .00 |
| 13 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 14 | .00 | .00 | .00 | .00 | .27 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 15 | .00 | .00 | .00 | 11 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 16 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 17 | .00 | .00 | .00 | 2.3 | .00 | .00 | .00 | .00 | .00 | .00 | 6.0 | .00 |
| 18 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 19 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 20 | .00 | .00 | .00 | .36 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 21 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 25 |
| 22 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 23 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 24 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 25 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 10 | .00 | .00 |
| 26 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 27 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 28 | .00 | .00 | 9.7 | .00 | .40 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 29 | .49 | .00 | .00 | .00 | --- | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 30 | .00 | .00 | .00 | .00 | --- | .00 | .00 | .00 | .00 | .08 | .00 | .00 |
| 31 | .00 | --- | .00 | .00 | --- | .00 | --- | .00 | --- | .10 | .00 | --- |
| TOTAL | 5.79 | .00 | 9.70 | 19.86 | 11.57 | 4.36 | .00 | .99 | .00 | 17.39 | 8.80 | 25.00 |
| MEAN | .19 | .000 | .31 | .64 | .41 | .14 | .000 | .032 | .000 | .56 | .28 | .83 |
| MAX | 2.4 | .00 | 9.7 | 11 | 7.2 | 2.2 | .00 | .99 | .00 | 10 | 6.0 | 25 |
| MIN | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| AC-FT | 11 | .00 | 19 | 39 | 23 | 8.6 | .00 | 2.0 | .00 | 34 | 17 | 50 |

CAL YR 1977 TOTAL 29.59 MEAN .081 MAX 9.7 MIN .00 AC-FT 59
WTR YR 1978 TOTAL 103.46 MEAN .28 MAX 25 MIN .00 AC-FT 205

GILA RIVER BASIN

09486300 CANADA DEL ORO NEAR TUCSON, AZ

LOCATION.--Lat 32°22'27", long 111°00'31", in SW¼NW¼ sec.22, T.12 S., R.13 E., Pima County, Hydrologic Unit 15050301, on right bank at upstream side of Overton Road, 4.7 mi (7.6 km) upstream from mouth, and 10.5 mi (16.9 km) north of city hall in Tucson.

DRAINAGE AREA.--250 $mi^2$ (648 $km^2$).

PERIOD OF RECORD.--October 1965 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,374.39 ft (723.714 m) National Geodetic Vertical Datum of 1929 (Project bench mark).

REMARKS.--Records poor. Lago del Oro—capacity 9,400 acre-ft (11.6 $hm^3$)—16 mi (26 km) upstream, has contained no storage since May 4, 1971, as gates were opened by court order; however, peak flows are regulated while passing through the lake.

AVERAGE DISCHARGE.--13 years, 1.69 $ft^3/s$ (0.048 $m^3/s$), 1,220 acre-ft/yr (1.50 $hm^3/yr$); median of yearly mean discharges, 1.2 $ft^3/s$ (0.03 $m^3/s$), 870 acre-ft/yr (1.07 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,900 $ft^3/s$ (394 $m^3/s$) Dec. 20, 1967, gage height, 7.65 ft (2.332 m), from high-water mark in gage well, from rating curve extended above 580 $ft^3/s$ (16.4 $m^3/s$) on basis of slope-area measurement of peak flow; no flow for most of each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*) and peak discharges above base of 500 $ft^3/s$ (14 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) | Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Oct. 6 | 1700 | 1,110 | 31.4 | 3.75 | 1.143 | Jan. 16 | 0100 | *2,070 | 58.6 | 4.40 | 1.341 |
| Oct. 9 | 0800 | 664 | 18.8 | 3.35 | 1.021 | Mar. 1 | 1330 | 628 | 17.8 | 3.18 | 0.969 |

No flow for most of year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .00 | .00 | .00 | .00 | .00 | 167 | .00 | .00 | .00 | .00 | .00 | .00 |
| 2 | .00 | .00 | .00 | .00 | .00 | 7.6 | .00 | .00 | .00 | .00 | .00 | .00 |
| 3 | .00 | .00 | .00 | .00 | .00 | 10 | .00 | .00 | .00 | .00 | .00 | .00 |
| 4 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 5 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 5.9 |
| 6 | 106 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 7 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 9 | 74 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 10 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 11 | .00 | .00 | .00 | .00 | 30 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 12 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 13 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 14 | .00 | .00 | .00 | .00 | 13 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 15 | .00 | .00 | .00 | 37 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 16 | .00 | .00 | .00 | 155 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 17 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 18 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 19 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 20 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 21 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 22 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 23 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 24 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 25 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 2.0 | .00 | .00 |
| 26 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 1.4 | .00 | .00 |
| 27 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .10 | .00 | .00 |
| 28 | .00 | .00 | .00 | .00 | 2.6 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 29 | .00 | .00 | 15 | .00 | --- | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 30 | .00 | .00 | .00 | .00 | --- | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 31 | .00 | --- | .00 | .00 | --- | .00 | --- | .00 | --- | .00 | .00 | --- |
| TOTAL | 180.00 | .00 | 15.00 | 192.00 | 45.60 | 184.60 | .00 | .00 | .00 | 3.50 | .00 | 5.90 |
| MEAN | 5.81 | .000 | .48 | 6.19 | 1.63 | 5.95 | .000 | .000 | .000 | .11 | .000 | .20 |
| MAX | 106 | .00 | 15 | 155 | 30 | 167 | .00 | .00 | .00 | 2.0 | .00 | 5.9 |
| MIN | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| AC-FT | 357 | .00 | 30 | 381 | 90 | 366 | .00 | .00 | .00 | 6.9 | .00 | 12 |

CAL YR 1977 TOTAL 663.50 MEAN 1.82 MAX 165 MIN .00 AC-FT 1320
WTR YR 1978 TOTAL 626.60 MEAN 1.72 MAX 167 MIN .00 AC-FT 1240

## 09486500 SANTA CRUZ RIVER AT CORTARO, AZ

LOCATION.--Lat 32°21'04", long 111°05'38", in NW¼NW¼ sec.35, T.12 S., R.12 E., Pima County, Hydrologic Unit 15050302, on downstream side of right bridge pier 0.5 mi (0.8 km) southwest of Cortaro, 2.6 mi (4.2 km) downstream from Canada del Oro, and 3.7 mi (6.0 km) downstream from Rillito Creek.

DRAINAGE AREA.--3,503 $mi^2$ (9,073 $km^2$), of which 395 $mi^2$ (1,023 $km^2$) is in Mexico.

PERIOD OF RECORD.--October 1939 to June 1947 (published as "at Rillito"), July 1950 to current year.

REVISED RECORDS.--WSP 1283: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,133.13 ft (650.178 m) National Geodetic Vertical Datum of 1929 (State Highway Department bench mark). Prior to June 30, 1947, at site 5.5 mi (8.8 km) downstream at different datum. July 8, 1950, to Jan. 20, 1966, at present site at datum 4.00 ft (1.219 m) higher. Supplementary water-stage recorder on downstream side of left bridge pier at same datum since Aug. 29, 1969.

REMARKS.--Records poor. Many diversions above station, mostly by pumping from ground water, for irrigation of about 34,000 acres (138 $km^2$). Waste water from irrigation and from sewage-disposal plant is included in flow past station; included only in water years 1951, 1952, and since 1970 water year. This year most of flow shown below 50 $ft^3/s$ (1.42 $m^3/s$) is waste water.

AVERAGE DISCHARGE (unadjusted for waste water and sewage effluent).--35 years (water years 1940-46, 1951-78), 39.4 $ft^3/s$ (1.12 $m^3/s$) 28,550 acre-ft/yr (35.2 $hm^3/yr$); median of yearly mean discharges, 28 $ft^3/s$ (0.79 $m^3/s$), 20,300 acre-ft/yr (25 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 23,000 $ft^3/s$ (651 $m^3/s$) Oct. 10, 1977, gage height, 15.6 ft (4.75 m); no natural flow for most of each year. (See REMARKS.)

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*) and peak discharges above base of 2,700 $ft^3/s$ (76 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) | Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Oct. 6 | 1830 | 4,910 | 139 | 10.35 | 3.155 | Mar. 2 | 1200 | 7,820 | 221 | 11.13 | 3.392 |
| Oct. 10 | 1000 | *23,000 | 651 | 15.6 | 4.75 | Aug. 2 | 0330 | 2,800 | 79.3 | 8.89 | 2.710 |
| Jan. 15 | 1830 | 3,440 | 97.4 | 9.55 | 2.911 | | | | | | |

No flow Oct. 17 and Nov. 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 25 | 20 | 38 | 45 | 72 | 3920 | 20 | 20 | 15 | 30 | 64 | 15 |
| 2 | 23 | 8.6 | 40 | 40 | 24 | 5010 | 20 | 20 | 15 | 25 | 1270 | 15 |
| 3 | 26 | .00 | 40 | 35 | 16 | 4250 | 20 | 20 | 15 | 25 | 162 | 15 |
| 4 | 22 | 10 | 33 | 35 | 15 | 983 | 20 | 20 | 15 | 25 | 568 | 15 |
| 5 | 22 | 29 | 37 | 30 | 10 | 250 | 20 | 20 | 15 | 25 | 100 | 15 |
| 6 | 885 | 31 | 38 | 30 | 8.0 | 150 | 20 | 20 | 15 | 25 | 50 | 15 |
| 7 | 672 | 37 | 38 | 30 | 6.0 | 75 | 20 | 20 | 15 | 25 | 30 | 15 |
| 8 | 544 | 32 | 37 | 30 | 5.0 | 50 | 20 | 20 | 15 | 25 | 25 | 15 |
| 9 | 6540 | 31 | 35 | 30 | 12 | 40 | 20 | 20 | 15 | 25 | 20 | 15 |
| 10 | 12600 | 29 | 32 | 20 | 20 | 35 | 20 | 20 | 15 | 79 | 20 | 15 |
| 11 | 1210 | 32 | 32 | 225 | 530 | 30 | 20 | 20 | 15 | 30 | 332 | 15 |
| 12 | 275 | 25 | 34 | 54 | 353 | 49 | 20 | 20 | 15 | 25 | 548 | 15 |
| 13 | 50 | 24 | 34 | 54 | 230 | 99 | 20 | 20 | 15 | 24 | 100 | 15 |
| 14 | 15 | 27 | 34 | 41 | 230 | 93 | 20 | 20 | 15 | 22 | 50 | 15 |
| 15 | 14 | 31 | 34 | 831 | 513 | 30 | 20 | 20 | 15 | 20 | 40 | 15 |
| 16 | 20 | 29 | 34 | 1080 | 339 | 20 | 20 | 20 | 15 | 20 | 30 | 15 |
| 17 | .00 | 31 | 34 | 345 | 150 | 20 | 20 | 20 | 15 | 20 | 25 | 15 |
| 18 | 7.0 | 34 | 32 | 200 | 125 | 20 | 20 | 20 | 15 | 20 | 20 | 15 |
| 19 | 5.0 | 33 | 33 | 50 | 100 | 20 | 20 | 20 | 15 | 20 | 15 | 15 |
| 20 | 5.0 | 32 | 35 | 40 | 50 | 20 | 20 | 20 | 15 | 20 | 15 | 15 |
| 21 | 5.0 | 39 | 34 | 35 | 40 | 20 | 20 | 19 | 15 | 20 | 15 | 23 |
| 22 | 5.0 | 45 | 35 | 33 | 35 | 20 | 20 | 18 | 15 | 20 | 15 | 30 |
| 23 | 5.0 | 47 | 35 | 30 | 35 | 20 | 20 | 17 | 15 | 20 | 15 | 25 |
| 24 | 5.0 | 41 | 35 | 28 | 35 | 20 | 20 | 16 | 15 | 20 | 15 | 20 |
| 25 | 5.0 | 44 | 31 | 26 | 35 | 20 | 20 | 15 | 15 | 27 | 15 | 15 |
| 26 | 5.0 | 42 | 32 | 25 | 35 | 20 | 20 | 15 | 15 | 20 | 15 | 15 |
| 27 | 5.0 | 36 | 39 | 23 | 35 | 20 | 20 | 15 | 15 | 216 | 15 | 15 |
| 28 | 10 | 38 | 341 | 22 | 146 | 20 | 20 | 15 | 15 | 30 | 15 | 15 |
| 29 | 15 | 39 | 167 | 21 | --- | 20 | 20 | 15 | 20 | 25 | 15 | 15 |
| 30 | 22 | 37 | 65 | 23 | --- | 20 | 20 | 15 | 34 | 25 | 15 | 15 |
| 31 | 20 | --- | 50 | 28 | --- | 20 | --- | 15 | --- | 130 | 15 | --- |
| TOTAL | 23062.00 | 933.60 | 1568 | 3539 | 3204.0 | 15384 | 600 | 575 | 474 | 1083 | 3649 | 488 |
| MEAN | 744 | 31.1 | 50.6 | 114 | 114 | 496 | 20.0 | 18.5 | 15.8 | 34.9 | 118 | 16.3 |
| MAX | 12600 | 47 | 341 | 1080 | 530 | 5010 | 20 | 20 | 34 | 216 | 1270 | 30 |
| MIN | .00 | .00 | 31 | 20 | 5.0 | 20 | 20 | 15 | 15 | 20 | 15 | 15 |
| AC-FT | 45740 | 1850 | 3110 | 7020 | 6360 | 30510 | 1190 | 1140 | 940 | 2150 | 7240 | 968 |

CAL YR 1977 TOTAL 37535.60 MEAN 103 MAX 12600 MIN .00 AC-FT 74450
WTR YR 1978 TOTAL 54559.60 MEAN 149 MAX 12600 MIN .00 AC-FT 108200

GILA RIVER BASIN

09488500 SANTA ROSA WASH NEAR VAIVA VO, NEAR SELLS, AZ

LOCATION.--Lat 32°40'03", long 111°55'39", in SW¼SW¼ sec.2, T.9 S., R.4 E., Pinal County, Hydrologic Unit 15050306, in Papago Indian Reservation, on right bank about 1 mi (2 km) downstream from Tat Momolikot Dam, 3.3 mi (5.3 km) south of Vaiva Vo, 10 mi (16 km) southwest of Chuichu, 12 mi (19 km) downstream from Gu Komelik and 52 mi (84 km) north of Sells.

DRAINAGE AREA.--1,782 $mi^2$ (4,615 $km^2$).

PERIOD OF RECORD.--October 1954 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,470 ft (448 m), from topographic map.

REMARKS.--Records poor. Beginning July 1974, flood flows are regulated by Lake St. Clair, formed by Tat Momolikot Dam, about 1 mi (2 km) upstream--total capacity, 384,000 acre-ft (473 $hm^3$).

AVERAGE DISCHARGE.--20 years, (water years 1955-74), 14.0 $ft^3/s$ (0.396 $m^3/s$), 10,140 acre-ft/yr (12.5 $hm^3/yr$); median of yearly mean discharges, 8.1 $ft^3/s$ (0.23 $m^3/s$), 5,900 acre-ft/yr (7.3 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 53,100 $ft^3/s$ (1,500 $m^3/s$) Sept. 27, 1962, gage height, 16.9 ft (5.15 m), from rating curve extended above 840 $ft^3/s$ (24 $m^3/s$) on basis of slope-area measurement of peak flow; no flow for most of each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 66 $ft^3/s$ (1.87 $m^3/s$) Feb. 13, gage height, 1.86 ft (0.567 m); no flow for most of year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .00 | .00 | .00 | .00 | .00 | 2.8 | .00 | .00 | .00 | .00 | .00 | .00 |
| 2 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .20 | .00 |
| 3 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 4 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 5 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 6 | 1.6 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 7 | .20 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 9 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 10 | .00 | .00 | .00 | .60 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 11 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 12 | .00 | .00 | .00 | .00 | .00 | 3.8 | .00 | .00 | .00 | .00 | .00 | .00 |
| 13 | .00 | .00 | .00 | .00 | 5.1 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 14 | .00 | .00 | .00 | .00 | 1.1 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 15 | .00 | .00 | .00 | 2.2 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 16 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 17 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 18 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 19 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 20 | .00 | .00 | .00 | 1.5 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 21 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 22 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 23 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 24 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 25 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 26 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 27 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 28 | .00 | .00 | .70 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 29 | .00 | .00 | 2.0 | .00 | --- | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 30 | .00 | .00 | .00 | .00 | --- | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 31 | .00 | --- | .00 | .00 | --- | .00 | --- | .00 | --- | .00 | .00 | --- |
| TOTAL | 1.80 | .00 | 2.70 | 4.30 | 6.20 | 6.60 | .00 | .00 | .00 | .00 | .20 | .00 |
| MEAN | .058 | .000 | .087 | .14 | .22 | .21 | .000 | .000 | .000 | .000 | .006 | .000 |
| MAX | 1.6 | .00 | 2.0 | 2.2 | 5.1 | 3.8 | .00 | .00 | .00 | .00 | .20 | .00 |
| MIN | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| AC-FT | 3.6 | .00 | 5.4 | 8.5 | 12 | 13 | .00 | .00 | .00 | .00 | .4 | .00 |

CAL YR 1977 TOTAL 43.10 MEAN .12 MAX 19 MIN .00 AC-FT 85
WTR YR 1978 TOTAL 21.80 MEAN .060 MAX 5.1 MIN .00 AC-FT 43

## 09489000 SANTA CRUZ RIVER NEAR LAVEEN, AZ
(National stream-quality accounting network station)

LOCATION.--Lat 33°13'56", long 112°10'08", in NE¼NE¼ sec.29, T.2 S., R.2 E., Pinal County, Hydrologic Unit 15050303, in Gila River Indian Reservation, on downstream side of highway bridge, 3.4 mi (5.5 km) upstream from mouth, 4.3 mi (6.9 km) south of Komatke, and 9 mi (14 km) south of Laveen.

DRAINAGE AREA.--8,581 $mi^2$ (22,225 $km^2$).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1940 to September 1946, December 1947 to current year.

REVISED RECORDS.--WSP 1283: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,020.86 ft (311.158 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair. Many diversions above station, mostly by pumping from ground water, for municipal uses and for irrigation of about 240,000 acres (970 $km^2$), not including San Carlos Project. Much of the low flow passing this station is drainage and wasteway return from irrigated lands upstream and pumpage from ground water; such flow is excluded when it can be identified.

AVERAGE DISCHARGE.--36 years (water years 1941-46, 1949-78), 18.3 $ft^3/s$ (0.518 $m^3/s$), 13,260 acre-ft/yr (16.3 $hm^3/yr$); median of yearly mean discharges, 11 $ft^3/s$ (0.31 $m^3/s$), 7,970 acre-ft/yr (9.8 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,200 $ft^3/s$ (261 $m^3/s$) Sept. 29, 1962, gage height, 17.50 ft (5.334 m); no flow for most of time in recent years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*) and peak discharges above base of 380 $ft^3/s$ (11 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) | Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Oct. 13 | 1430 | *2,010 | 56.9 | 14.59 | 4.447 | Feb. 14 | 2300 | 900 | 25.5 | 12.50 | 3.810 |
| Jan. 19 | 0230 | 696 | 19.7 | 12.03 | 3.667 | Mar. 6 | 0745 | 1,570 | 44.5 | 13.94 | 4.249 |

No flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .00 | 1.0 | .08 | 61 | 2.0 | 24 | 2.8 | .00 | .00 | .00 | .02 | .03 |
| 2 | .00 | .87 | .40 | 7.9 | 1.4 | 21 | .86 | .00 | .00 | .00 | 2.1 | .02 |
| 3 | .00 | .72 | .54 | .82 | .67 | 36 | .70 | .00 | .00 | .00 | 6.7 | .02 |
| 4 | .00 | .41 | .46 | .31 | .50 | 561 | .68 | .00 | .00 | .00 | 7.9 | .02 |
| 5 | .00 | .20 | .43 | .17 | .33 | 790 | .64 | .00 | .00 | .00 | 1.1 | .02 |
| 6 | 5.8 | .12 | .40 | .15 | 2.0 | 932 | .86 | .00 | .00 | .00 | 1.0 | .01 |
| 7 | .00 | .08 | .40 | .09 | 3.1 | 395 | .59 | .00 | .20 | .00 | .10 | .01 |
| 8 | .00 | .07 | .41 | .08 | 2.4 | 40 | .16 | .00 | .10 | .00 | .13 | .01 |
| 9 | .00 | .06 | .40 | .07 | 1.7 | .42 | .22 | .00 | .00 | .00 | .07 | .00 |
| 10 | 47 | .05 | .53 | 15 | .82 | .01 | .13 | .00 | .00 | .00 | .07 | .00 |
| 11 | 141 | .05 | .62 | 39 | 1.6 | .00 | .08 | .00 | .00 | .00 | .06 | .00 |
| 12 | 751 | .05 | .97 | 40 | .43 | .08 | .07 | .00 | .00 | .00 | .06 | .00 |
| 13 | 1780 | .04 | .71 | 70 | 3.0 | 10 | 5.3 | .00 | .00 | .00 | .38 | .00 |
| 14 | 929 | .04 | .52 | 195 | 610 | 55 | 2.5 | .00 | .00 | .00 | .46 | .00 |
| 15 | 123 | .04 | .63 | 143 | 541 | 29 | .38 | .00 | .00 | .00 | .08 | .00 |
| 16 | 17 | .04 | .45 | 151 | 196 | 8.9 | .11 | .00 | .00 | .00 | .07 | .00 |
| 17 | 2.9 | .04 | .22 | 88 | 214 | 4.9 | .08 | .00 | .00 | .00 | .06 | .00 |
| 18 | 2.7 | .03 | .58 | 428 | 335 | 8.1 | .07 | .00 | .00 | .00 | .05 | .00 |
| 19 | 1.7 | .03 | 1.1 | 470 | 148 | 3.1 | .06 | .00 | .00 | .00 | .03 | .00 |
| 20 | 1.3 | .03 | 2.1 | 179 | 33 | 4.1 | .05 | .00 | .00 | .00 | .02 | .00 |
| 21 | 1.6 | .03 | 2.7 | 102 | 5.9 | 5.7 | .00 | .00 | .00 | .00 | .02 | .00 |
| 22 | 1.2 | .17 | 2.5 | 19 | .85 | 2.2 | .00 | .00 | .00 | 12 | .02 | .00 |
| 23 | .74 | .44 | 2.3 | 3.9 | .16 | 1.9 | .00 | .00 | .00 | .12 | 23 | .00 |
| 24 | .64 | .16 | 2.1 | 1.4 | .07 | 1.7 | .00 | .00 | .00 | 32 | 1.4 | .00 |
| 25 | .59 | .08 | 1.7 | .59 | .03 | 1.6 | .00 | .00 | .00 | 76 | .12 | .00 |
| 26 | .56 | .14 | .45 | .42 | .01 | 1.4 | .00 | .00 | .00 | 25 | .09 | .00 |
| 27 | .52 | .21 | .15 | .27 | .00 | 3.1 | .00 | .00 | .00 | 2.0 | .07 | .00 |
| 28 | .53 | .09 | .08 | .61 | .69 | 2.1 | .00 | .00 | .00 | .17 | .06 | .00 |
| 29 | 6.9 | .08 | .43 | .52 | --- | 1.2 | .00 | .00 | .00 | .07 | .05 | .00 |
| 30 | 3.6 | .13 | .58 | .68 | --- | 1.2 | .00 | .00 | .00 | .06 | .04 | .00 |
| 31 | 1.2 | --- | 1.4 | 1.2 | --- | 1.4 | --- | .00 | --- | .04 | .03 | --- |
| TOTAL | 3820.48 | 5.50 | 26.34 | 2019.18 | 2104.66 | 2948.11 | 16.32 | .00 | .30 | 147.46 | 45.36 | .14 |
| MEAN | 123 | .18 | .85 | 65.1 | 75.2 | 95.1 | .54 | .000 | .010 | 4.76 | 1.46 | .005 |
| MAX | 1780 | 1.0 | 2.7 | 470 | 610 | 932 | 5.3 | .00 | .20 | 76 | 23 | .03 |
| MIN | .00 | .03 | .08 | .07 | .00 | .00 | .00 | .00 | .00 | .00 | .02 | .00 |
| AC-FT | 7580 | 11 | 52 | 4010 | 4170 | 5850 | 32 | .00 | .6 | 292 | 90 | .3 |

CAL YR 1977 TOTAL 3935.99 MEAN 10.8 MAX 1780 MIN .00 AC-FT 7810
WTR YR 1978 TOTAL 11133.85 MEAN 30.5 MAX 1780 MIN .00 AC-FT 22080

09489000 SANTA CRUZ RIVER NEAR LAVEEN, AZ--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1974 to current year.

REMARKS.--Some low flow is entirely waste water from irrigated lands.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | TUR-BID-ITY (JTU) | TUR-BID-ITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) | COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 11... | 1545 | 55 | 375 | 7.6 | 25.0 | 4100 | -- | 7.0 | K88000 |
| 14... | 1045 | 976 | 577 | 8.2 | 21.0 | 9000 | -- | 6.7 | 102000 |
| JAN | | | | | | | | | |
| 26... | 1100 | .28 | 270 | 7.9 | 6.0 | 300 | -- | 11.0 | K500 |
| MAR | | | | | | | | | |
| 01... | 1130 | 16 | 760 | 9.2 | 14.5 | 3200 | -- | 8.9 | K1100 |
| APR | | | | | | | | | |
| 05... | 1100 | .14 | 1650 | 8.0 | 19.0 | 20 | -- | 5.5 | K26 |
| AUG | | | | | | | | | |
| 03... | 1000 | 1.6 | 755 | 9.5 | 24.0 | -- | 5600 | 4.3 | K69000 |

| DATE | STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | BICAR-BONATE (MG/L AS HCO3) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 11... | 84000 | 82 | 0 | 28 | 2.9 | 42 | 2.0 | 7.8 | 170 |
| 14... | 160000 | 120 | 0 | 38 | 5.2 | 67 | 2.7 | 6.4 | 160 |
| JAN | | | | | | | | | |
| 26... | 4400 | 81 | 0 | 27 | 3.2 | 27 | 1.3 | 3.9 | 110 |
| MAR | | | | | | | | | |
| 01... | 47000 | 42 | 0 | 14 | 1.6 | 150 | 10 | 2.5 | 140 |
| APR | | | | | | | | | |
| 05... | 72 | 420 | 340 | 120 | 29 | 190 | 4.0 | 10 | 99 |
| AUG | | | | | | | | | |
| 03... | K151000 | 19 | 0 | 7.0 | .3 | 150 | 15 | 2.6 | -- |

| DATE | CAR-BONATE (MG/L AS CO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER AC-FT) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 11... | 0 | 30 | 14 | .6 | 19 | 222 | 228 | .30 |
| 14... | 0 | 97 | 28 | .9 | 25 | 358 | 346 | .49 |
| JAN | | | | | | | | |
| 26... | 0 | 30 | 10 | .3 | 11 | 174 | 167 | .24 |
| MAR | | | | | | | | |
| 01... | 21 | 100 | 100 | 1.5 | 10 | 481 | 470 | .65 |
| APR | | | | | | | | |
| 05... | 0 | 380 | 280 | 1.1 | 5.2 | 1080 | 1060 | 1.47 |
| AUG | | | | | | | | |
| 03... | -- | 70 | 72 | 1.7 | 18 | 435 | 418 | .59 |

K Based on non-ideal colony count.

09489000 SANTA CRUZ RIVER NEAR LAVEEN, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN, AMMONIA TOTAL (MG/L AS N) | NITROGEN, ORGANIC TOTAL (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | NITROGEN, NH4 + ORG. SUSP. TOTAL (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N) | NITROGEN, TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | PHOSPHORUS, DISSOLVED (MG/L AS P) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 11... | 1.1 | .08 | -- | -- | -- | .95 | -- | 5.3 | .28 |
| 14... | 3.6 | .05 | -- | -- | -- | 1.4 | -- | 13 | .24 |
| JAN | | | | | | | | | |
| 26... | 1.1 | .07 | -- | -- | -- | .35 | -- | .71 | .30 |
| MAR | | | | | | | | | |
| 01... | 2.5 | .15 | .76 | .91 | .38 | .53 | 3.4 | 5.8 | .19 |
| APR | | | | | | | | | |
| 05... | 4.1 | .25 | 1.7 | 1.9 | .20 | 1.7 | 6.0 | .16 | .04 |
| AUG | | | | | | | | | |
| 03... | .94 | .41 | 9.6 | 10 | 7.3 | 2.7 | 11 | 9.9 | .27 |

| DATE | ARSENIC TOTAL (UG/L AS AS) | ARSENIC DISSOLVED (UG/L AS AS) | BARIUM, TOTAL RECOVERABLE (UG/L AS BA) | BARIUM, DISSOLVED (UG/L AS BA) | CADMIUM TOTAL RECOVERABLE (UG/L AS CD) | CADMIUM DISSOLVED (UG/L AS CD) | CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) | CHROMIUM, DISSOLVED (UG/L AS CR) | COBALT, TOTAL RECOVERABLE (UG/L AS CO) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 11... | 100 | 14 | 600 | 0 | 10 | 2 | 60 | 0 | 100 |
| JAN | | | | | | | | | |
| 26... | 9 | 8 | 100 | 100 | 1 | 1 | 20 | 10 | 4 |
| AUG | | | | | | | | | |
| 03... | 65 | 28 | 1200 | 30 | 4 | 0 | 120 | 0 | -- |

| DATE | COBALT, DISSOLVED (UG/L AS CO) | COPPER, TOTAL RECOVERABLE (UG/L AS CU) | COPPER, DISSOLVED (UG/L AS CU) | IRON, TOTAL RECOVERABLE (UG/L AS FE) | IRON, DISSOLVED (UG/L AS FE) | LEAD, TOTAL RECOVERABLE (UG/L AS PB) | LEAD, DISSOLVED (UG/L AS PB) | MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) | MANGANESE, DISSOLVED (UG/L AS MN) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 11... | 0 | 270 | 16 | 77000 | 150 | 300 | 3 | 4500 | 0 |
| JAN | | | | | | | | | |
| 26... | 0 | 33 | 7 | 8700 | 30 | 19 | 2 | 250 | 10 |
| AUG | | | | | | | | | |
| 03... | 2 | -- | 45 | 130000 | 210 | 3 | 0 | 8600 | 10 |

09489000 SANTA CRUZ RIVER NEAR LAVEEN, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) | MERCURY DIS-SOLVED (UG/L AS HG) | SELE-NIUM, TOTAL (UG/L AS SE) | SELE-NIUM, DIS-SOLVED (UG/L AS SE) | SILVER, TOTAL RECOV-ERABLE (UG/L AS AG) | SILVER, DIS-SOLVED (UG/L AS AG) | ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) | ZINC, DIS-SOLVED (UG/L AS ZN) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 11... | .3 | .0 | 2 | 0 | 30 | 0 | 470 | 10 |
| JAN | | | | | | | | |
| 26... | .0 | .0 | 0 | 0 | 0 | 0 | 50 | 20 |
| AUG | | | | | | | | |
| 03... | .1 | .1 | 2 | 1 | 1 | 0 | 660 | 10 |

| DATE | CARBON, ORGANIC TOTAL (MG/L AS C) | PHYTO-PLANK-TON, TOTAL (CELLS PER ML) | SEDI-MENT, SUS-PENDED (MG/L) | SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) | SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM |
|---|---|---|---|---|---|
| OCT | | | | | |
| 11... | 52 | 44000 | 5530 | 821 | 100 |
| 14... | 232 | -- | 15100 | 39800 | 100 |
| JAN | | | | | |
| 26... | 9.4 | -- | 2000 | 1.5 | 100 |
| MAR | | | | | |
| 01... | 25 | -- | -- | -- | -- |
| APR | | | | | |
| 05... | 7.2 | 20000 | 44 | .02 | 91 |
| AUG | | | | | |
| 03... | -- | 110 | -- | -- | -- |

09489000 SANTA CRUZ RIVER NEAR LAVEEN, AZ--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

PHYTOPLANKTON

| DATE | OCT 11,77 | | APR 5,78 | | AUG 3,78 | |
|---|---|---|---|---|---|---|
| TIME | 1545 | | 1100 | | 1000 | |
| TOTAL CELLS/ML | 44000 | | 20000 | | 110 | |
| DIVERSITY: DIVISION | 0.1 | | 2.0 | | 0.0 | |
| .CLASS | 0.1 | | 2.1 | | 0.0 | |
| ..ORDER | 0.1 | | 2.2 | | 0.0 | |
| ...FAMILY | 0.1 | | 2.5 | | 0.0 | |
| ....GENUS | 1.0 | | 2.6 | | 0.0 | |
| ORGANISM | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT |
| CHLOROPHYTA (GREEN ALGAE) | | | | | | |
| .CHLOROPHYCEAE | | | | | | |
| ..CHLOROCOCCALES | | | | | | |
| ...OOCYSTACEAE | | | | | | |
| ....ANKISTRODESMUS | -- | - | 6900# | 35 | -- | - |
| ....SELENASTRUM | -- | - | 140 | 1 | -- | - |
| ...SCENEDESMACEAE | | | | | | |
| ....SCENEDESMUS | -- | - | 1400 | 7 | -- | - |
| ..VOLVOCALES | | | | | | |
| ...CHLAMYDOMONADACEAE | | | | | | |
| ....CHLAMYDOMONAS | -- | - | 430 | 2 | -- | - |
| CHRYSOPHYTA | | | | | | |
| .BACILLARIOPHYCEAE | | | | | | |
| ..CENTRALES | | | | | | |
| ...COSCINODISCACEAE | | | | | | |
| ....CYCLOTELLA | -- | - | 430 | 2 | 110# | 100 |
| ..PENNALES | | | | | | |
| ...ACHNANTHACEAE | | | | | | |
| ....COCCONEIS | 530 | 1 | -- | - | -- | - |
| ...GOMPHONEMATACEAE | | | | | | |
| ....GOMPHONEMA | -- | - | 140 | 1 | -- | - |
| ...NITZSCHIACEAE | | | | | | |
| ....NITZSCHIA | -- | - | 290 | 1 | -- | - |
| .CHRYSOPHYCEAE | | | | | | |
| ..CHRYSOMONADALES | | | | | | |
| ...OCHROMONADACEAE | | | | | | |
| ....OCHROMONAS | -- | - | 430 | 2 | -- | - |
| CRYPTOPHYTA (CRYPTOMONADS) | | | | | | |
| .CRYPTOPHYCEAE | | | | | | |
| ..CRYPTOMONADALES | | | | | | |
| ...CRYPTOMONADACEAE | | | | | | |
| ....CRYPTOMONAS | -- | - | 3400# | 17 | -- | - |
| CYANOPHYTA (BLUE-GREEN ALGAE) | | | | | | |
| .CYANOPHYCEAE | | | | | | |
| ..CHROOCOCCALES | | | | | | |
| ...CHROOCOCCACEAE | | | | | | |
| ....ANACYSTIS | -- | - | 4900# | 25 | -- | - |
| ..HORMOGONALES | | | | | | |
| ...OSCILLATORIACEAE | | | | | | |
| ....LYNGBYA | 16000# | 36 | -- | - | -- | - |
| ....OSCILLATORIA | 27000# | 63 | -- | - | -- | - |
| EUGLENOPHYTA (EUGLENOIDS) | | | | | | |
| .EUGLENOPHYCEAE | | | | | | |
| ..EUGLENALES | | | | | | |
| ...EUGLENACEAE | | | | | | |
| ....EUGLENA | -- | - | 1000 | 5 | -- | - |
| ....PHACUS | -- | - | * | 0 | -- | - |
| ....TRACHELOMONAS | -- | - | 140 | 1 | -- | - |
| PYRRHOPHYTA (FIRE ALGAE) | | | | | | |
| .DINOPHYCEAE | | | | | | |
| ..PERIDINIALES | | | | | | |
| ...GLENODINIACEAE | | | | | | |
| ....GLENODINIUM | -- | - | 140 | 1 | -- | - |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

## 09489070 NORTH FORK OF EAST FORK BLACK RIVER NEAR ALPINE, AZ

LOCATION.--Lat 33°54'11", long 109°19'20", in SW¼NE¼ sec.19, T.6 N., R.29 E. (unsurveyed), Apache County, Hydrologic Unit 15060101, in Apache National Forest, on right bank 1.4 mi (2.3 km) downstream from Crosby Crossing and 12 mi (19 km) northwest of Alpine.

DRAINAGE AREA.--38.1 $mi^2$ (98.7 $km^2$).

PERIOD OF RECORD.--June 1965 to September 1978 (discontinued).

GAGE.--Water-stage recorder. Altitude of gage is 8,650 ft (2,637 m), from topographic map.

REMARKS.--Records good except those for Jan. 16 to Mar. 23, which are poor. Minor storage at headwaters for recreation and stock purposes; the largest is Big Lake. No diversions above station.

AVERAGE DISCHARGE.--13 years, 12.7 $ft^3/s$ (0.360 $m^3/s$), 9,200 acre-ft/yr (11.3 $hm^3/yr$); median of yearly mean discharges, 9.2 $ft^3/s$ (0.26 $m^3/s$) 6,700 acre-ft/yr (8.3 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,070 $ft^3/s$ (30.3 $m^3/s$) Apr. 17, 1973, gage height, 4.64 ft (1.414 m), from rating curve extended above 260 $ft^3/s$ (7.4 $m^3/s$) on basis of culvert and road overflow computation at gage height 3.80 ft (1.158 m); maximum gage height, 4.75 ft (1.448 m) Mar. 11, 1975 (result of ice jam); minimum daily discharge, 0.20 $ft^3/s$ (0.006 $m^3/s$) Dec. 20, 1968, to Mar. 15, 1969, and Jan. 6-10, 1971.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*) and peak discharges above base of 75 $ft^3/s$ (2.1 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|
| Mar. 7 | 1545 | 144 | 4.08 | 2.54 | 0.774 |
| Mar. 31 | 1530 | *383 | 10.8 | 3.40 | 1.036 |

Minimum daily, 0.27 $ft^3/s$ (0.008 $m^3/s$) Dec. 16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .50 | .57 | .41 | .40 | .30 | 5.0 | 229 | 12 | 1.3 | .62 | 2.5 | .30 |
| 2 | .50 | .53 | .54 | .59 | .30 | 6.0 | 208 | 11 | 1.3 | .57 | 1.8 | 1.0 |
| 3 | .50 | .55 | .55 | .67 | .30 | 7.0 | 231 | 14 | 1.2 | .55 | 1.1 | .70 |
| 4 | .50 | .54 | .55 | .68 | .30 | 8.0 | 212 | 12 | 1.1 | .53 | .75 | .50 |
| 5 | .50 | .53 | .51 | .68 | .30 | 9.0 | 199 | 24 | 1.1 | .51 | 1.1 | .30 |
| 6 | 4.7 | 1.3 | .43 | .67 | .30 | 9.0 | 213 | 15 | 1.3 | .50 | .73 | .30 |
| 7 | 3.6 | 1.2 | .44 | .66 | .30 | 10 | 208 | 12 | 2.1 | .52 | .83 | .30 |
| 8 | 1.2 | 1.1 | .52 | .52 | .30 | 90 | 136 | 12 | 1.9 | .59 | 1.1 | .30 |
| 9 | .83 | .89 | .46 | .54 | .30 | 70 | 91 | 7.9 | 1.6 | .74 | .99 | .30 |
| 10 | .68 | .93 | .49 | .63 | .30 | 60 | 70 | 6.1 | 3.1 | 1.7 | 1.2 | .30 |
| 11 | .60 | .88 | .52 | .66 | .30 | 60 | 91 | 6.3 | 1.2 | 2.2 | .87 | .30 |
| 12 | .58 | .81 | .47 | .64 | .30 | 50 | 122 | 4.5 | .89 | 1.1 | .74 | .30 |
| 13 | .58 | .72 | .41 | .53 | .30 | 40 | 117 | 3.7 | .87 | .91 | .70 | .30 |
| 14 | .60 | .72 | .47 | .57 | .30 | 50 | 102 | 3.3 | .86 | .78 | .60 | .30 |
| 15 | .53 | .66 | .49 | .68 | .30 | 50 | 89 | 3.0 | .77 | .90 | .50 | .30 |
| 16 | .52 | .63 | .27 | .50 | .30 | 30 | 70 | 3.2 | .74 | .81 | .40 | .30 |
| 17 | .53 | .60 | .44 | .40 | .30 | 20 | 56 | 3.5 | .71 | .61 | .30 | .50 |
| 18 | .53 | .60 | .54 | .30 | .30 | 25 | 45 | 2.5 | .70 | .60 | .30 | .30 |
| 19 | .53 | .56 | .43 | .30 | .30 | 30 | 40 | 2.2 | .67 | .71 | .30 | .30 |
| 20 | .51 | .59 | .29 | .30 | .30 | 40 | 38 | 2.6 | .64 | .77 | 1.6 | .30 |
| 21 | .49 | .61 | .35 | .30 | .30 | 50 | 36 | 3.8 | .64 | .98 | 1.3 | .30 |
| 22 | .51 | .55 | .51 | .30 | .30 | 60 | 29 | 2.4 | .63 | .81 | 3.4 | .30 |
| 23 | .52 | .56 | .56 | .30 | .30 | 70 | 26 | 2.0 | .64 | .74 | 2.0 | .50 |
| 24 | .51 | .52 | .57 | .30 | .30 | 75 | 23 | 2.1 | .64 | .89 | 1.3 | .30 |
| 25 | .49 | .60 | .67 | .40 | .30 | 80 | 21 | 1.9 | .58 | 1.4 | 1.3 | .70 |
| 26 | .49 | .54 | .67 | .30 | .30 | 85 | 20 | 1.7 | .57 | .93 | 1.0 | .50 |
| 27 | .50 | .56 | .72 | .30 | .50 | 82 | 20 | 1.6 | .69 | .99 | .70 | .30 |
| 28 | .51 | .55 | .57 | .30 | 2.0 | 86 | 16 | 1.6 | .95 | .68 | .50 | .30 |
| 29 | 1.2 | .48 | .70 | .30 | --- | 111 | 14 | 1.5 | .95 | .63 | .40 | .30 |
| 30 | .99 | .49 | .66 | .30 | --- | 163 | 13 | 1.4 | .74 | .57 | .30 | .30 |
| 31 | .62 | --- | .72 | .30 | --- | 270 | --- | 1.3 | --- | .59 | .50 | --- |
| TOTAL | 25.85 | 20.37 | 15.93 | 14.32 | 10.30 | 1801.0 | 2785 | 182.1 | 31.08 | 25.43 | 31.11 | 11.30 |
| MEAN | .83 | .68 | .51 | .46 | .37 | 58.1 | 92.8 | 5.87 | 1.04 | .82 | 1.00 | .38 |
| MAX | 4.7 | 1.3 | .72 | .68 | 2.0 | 270 | 231 | 24 | 3.1 | 2.2 | 3.4 | 1.0 |
| MIN | .49 | .48 | .27 | .30 | .30 | 5.0 | 13 | 1.3 | .57 | .50 | .30 | .30 |
| AC-FT | 51 | 40 | 32 | 28 | 20 | 3570 | 5520 | 361 | 62 | 50 | 62 | 22 |

CAL YR 1977 TOTAL 1548.50 MEAN 3.69 MAX 150 MIN .24 AC-FT 2670
WTR YR 1978 TOTAL 4953.79 MEAN 13.6 MAX 270 MIN .27 AC-FT 9830

NOTE.--No gage-height record Jan. 16 to Mar. 23, Aug. 13 to Sept. 30.

## 09489100 BLACK RIVER NEAR MAVERICK, AZ

LOCATION.--Lat 33°42'27", long 109°26'48", in SW¼ sec.30, T.4 N., R.28 E., Apache County, Hydrologic Unit 15060101, in Apache National Forest, on right bank 1.0 mi (1.6 km) downstream from Fish Creek, 1.1 mi (1.8 km) upstream from Conklin Creek, and 6 mi (10 km) southeast of Maverick.

DRAINAGE AREA.--315 $mi^2$ (816 $km^2$).

PERIOD OF RECORD.--October 1962 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 6,850 ft (2,088 m), from topographic map. Prior to Sept. 19, 1973, at datum 0.85 ft 0.259 m) higher.

REMARKS.--Records good. Minor storage for recreational and stock purposes near headwaters. No diversion above station.

AVERAGE DISCHARGE.--16 years, 131 $ft^3/s$ (3.710 $m^3/s$), 94,910 acre-ft/yr (117 $hm^3/yr$); median of yearly mean discharges, 110 $ft^3/s$ (3.12 $m^3/s$), 79,700 acre-ft/yr (98 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,100 $ft^3/s$ (314 $m^3/s$) Oct. 20, 1972, gage height, 8.14 ft (2.481 m), from rating curve extended above 2,100 $ft^3/s$ (59 $m^3/s$) on basis of slope-area measurement of peak flow; minimum daily, 9.6 $ft^3/s$ (0.27 $m^3/s$) Dec. 7, 1976.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*) and peak discharges above base of 400 $ft^3/s$ (11 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|
| Mar. 1 | 1700 | *2,390 | 67.7 | 4.91 | 1.497 |
| Mar. 31 | 2215 | 2,120 | 60.0 | 4.70 | 1.433 |

Minimum daily, 11 $ft^3/s$ (0.31 $m^3/s$) Dec. 20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 19 | 24 | 20 | 22 | 54 | 1640 | 1730 | 218 | 46 | 17 | 38 | 21 |
| 2 | 18 | 22 | 17 | 20 | 57 | 1240 | 1360 | 204 | 46 | 17 | 42 | 34 |
| 3 | 19 | 21 | 16 | 18 | 56 | 1090 | 1320 | 201 | 44 | 16 | 31 | 30 |
| 4 | 22 | 20 | 19 | 21 | 51 | 784 | 1230 | 178 | 42 | 16 | 27 | 24 |
| 5 | 23 | 20 | 22 | 19 | 52 | 749 | 1090 | 169 | 41 | 16 | 31 | 21 |
| 6 | 30 | 20 | 17 | 21 | 60 | 611 | 1090 | 194 | 41 | 16 | 29 | 19 |
| 7 | 109 | 20 | 16 | 21 | 71 | 471 | 1100 | 181 | 41 | 16 | 26 | 18 |
| 8 | 66 | 20 | 18 | 14 | 76 | 466 | 1040 | 175 | 39 | 16 | 39 | 18 |
| 9 | 45 | 20 | 17 | 15 | 73 | 510 | 763 | 145 | 39 | 18 | 34 | 18 |
| 10 | 37 | 24 | 19 | 25 | 82 | 498 | 648 | 130 | 39 | 18 | 46 | 18 |
| 11 | 33 | 34 | 19 | 22 | 80 | 420 | 593 | 123 | 38 | 21 | 45 | 17 |
| 12 | 29 | 38 | 17 | 17 | 62 | 395 | 674 | 117 | 37 | 23 | 32 | 16 |
| 13 | 28 | 35 | 16 | 15 | 69 | 346 | 763 | 112 | 35 | 23 | 27 | 16 |
| 14 | 27 | 30 | 17 | 21 | 64 | 333 | 756 | 111 | 34 | 22 | 23 | 17 |
| 15 | 26 | 33 | 19 | 26 | 53 | 320 | 770 | 113 | 33 | 23 | 21 | 17 |
| 16 | 24 | 30 | 19 | 22 | 55 | 324 | 700 | 110 | 32 | 19 | 19 | 21 |
| 17 | 23 | 29 | 13 | 24 | 40 | 395 | 623 | 105 | 30 | 17 | 18 | 25 |
| 18 | 23 | 24 | 20 | 20 | 43 | 521 | 521 | 99 | 28 | 16 | 17 | 23 |
| 19 | 22 | 26 | 22 | 15 | 41 | 694 | 476 | 90 | 27 | 18 | 19 | 19 |
| 20 | 22 | 27 | 11 | 21 | 48 | 854 | 450 | 87 | 26 | 20 | 43 | 18 |
| 21 | 21 | 24 | 12 | 26 | 55 | 942 | 420 | 89 | 24 | 25 | 40 | 17 |
| 22 | 21 | 23 | 17 | 23 | 64 | 1310 | 375 | 83 | 24 | 23 | 64 | 20 |
| 23 | 21 | 23 | 24 | 22 | 78 | 1520 | 351 | 75 | 22 | 20 | 48 | 24 |
| 24 | 21 | 22 | 21 | 21 | 97 | 1280 | 333 | 71 | 21 | 22 | 40 | 21 |
| 25 | 20 | 22 | 18 | 17 | 118 | 1190 | 320 | 66 | 23 | 35 | 42 | 28 |
| 26 | 20 | 21 | 19 | 21 | 132 | 1200 | 315 | 62 | 26 | 32 | 36 | 24 |
| 27 | 19 | 20 | 23 | 22 | 130 | 1210 | 315 | 59 | 24 | 31 | 29 | 22 |
| 28 | 19 | 20 | 25 | 26 | 577 | 1190 | 291 | 55 | 22 | 24 | 25 | 20 |
| 29 | 24 | 19 | 28 | 28 | --- | 1190 | 264 | 52 | 20 | 20 | 22 | 18 |
| 30 | 38 | 20 | 26 | 30 | --- | 1290 | 238 | 49 | 18 | 20 | 22 | 18 |
| 31 | 27 | --- | 24 | 37 | --- | 1500 | --- | 47 | --- | 19 | 25 | --- |
| TOTAL | 896 | 731 | 591 | 672 | 2438 | 26483 | 20919 | 3570 | 962 | 639 | 1000 | 622 |
| MEAN | 28.9 | 24.4 | 19.1 | 21.7 | 87.1 | 854 | 697 | 115 | 32.1 | 20.6 | 32.3 | 20.7 |
| MAX | 109 | 38 | 28 | 37 | 577 | 1640 | 1730 | 218 | 46 | 35 | 64 | 34 |
| MIN | 18 | 19 | 11 | 14 | 40 | 320 | 238 | 47 | 18 | 16 | 17 | 16 |
| AC-FT | 1780 | 1450 | 1170 | 1330 | 4840 | 52530 | 41490 | 7080 | 1910 | 1270 | 1980 | 1230 |

CAL YR 1977 TOTAL 13912 MEAN 38.1 MAX 493 MIN 11 AC-FT 27590
WTR YR 1978 TOTAL 59523 MEAN 163 MAX 1730 MIN 11 AC-FT 118100

## 09489200 PACHETA CREEK AT MAVERICK, AZ

LOCATION.--Lat 33°44'23", long 109°32'24", at corner of secs.28, 29, 32, 33, T.4½ N., R.27 E. (unsurveyed), Apache County, Hydrologic Unit 15060101, in Fort Apache Indian Reservation, on left bank 0.5 mi (0.8 km) southeast of Maverick.

DRAINAGE AREA.--14.8 $mi^2$ (38.3 $km^2$).

PERIOD OF RECORD.--October 1957 to current year. Prior to October 1970 published as Pachete Creek at Maverick.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 7,850 ft (2,393 m), by barometer.

REMARKS.--Records good.

AVERAGE DISCHARGE.--21 years, 8.28 $ft^3/s$ (0.234 $m^3/s$), 6,000 acre-ft/yr (7.40 $hm^3/yr$); median of yearly mean discharges, 6.8 $ft^3/s$ (0.19 $m^3/s$), 4,930 acre-ft/yr (6.1 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 323 $ft^3/s$ (9.15 $m^3/s$) May 13, 1973, gage height, 4.36 ft (1.329 m); minimum daily, 0.2 $ft^3/s$ (0.006 $m^3/s$) many days in 1959-60.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*) and peak discharges above base of 35 $ft^3/s$ (1.0 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|
| Mar. 1 | 1030 | 92 | 2.60 | 3.50 | 1.067 |
| Mar. 22 | 2000 | 112 | 3.17 | 3.67 | 1.119 |
| Mar. 30 | 1600 | *173 | 4.90 | 3.98 | 1.213 |

Minimum daily, 1.0 $ft^3/s$ (0.028 $m^3/s$), Jan. 16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1.7 | 1.4 | 1.4 | 1.1 | 1.2 | 45 | 136 | 31 | 4.3 | 1.6 | 2.3 | 1.4 |
| 2 | 1.7 | 1.4 | 1.4 | 1.1 | 1.3 | 38 | 117 | 24 | 4.0 | 1.6 | 1.5 | 1.6 |
| 3 | 1.7 | 1.4 | 1.4 | 1.1 | 1.3 | 35 | 115 | 20 | 3.9 | 1.6 | 1.4 | 1.7 |
| 4 | 1.7 | 1.4 | 1.4 | 1.3 | 1.3 | 35 | 108 | 19 | 3.6 | 1.6 | 1.3 | 1.5 |
| 5 | 1.7 | 1.3 | 1.4 | 1.1 | 1.3 | 35 | 102 | 20 | 3.3 | 1.6 | 1.3 | 1.4 |
| 6 | 2.4 | 1.3 | 1.3 | 1.1 | 1.3 | 37 | 104 | 26 | 3.4 | 1.6 | 1.3 | 1.4 |
| 7 | 3.0 | 1.3 | 1.3 | 1.1 | 1.3 | 45 | 106 | 24 | 3.3 | 1.6 | 1.4 | 1.4 |
| 8 | 2.3 | 1.6 | 1.3 | 1.1 | 1.4 | 42 | 107 | 23 | 3.1 | 1.7 | 1.4 | 1.3 |
| 9 | 2.1 | 1.4 | 1.3 | 1.1 | 1.4 | 44 | 91 | 18 | 2.9 | 1.7 | 1.4 | 1.3 |
| 10 | 2.0 | 1.3 | 1.3 | 1.1 | 1.4 | 40 | 77 | 16 | 2.7 | 1.6 | 1.4 | 1.3 |
| 11 | 1.8 | 1.4 | 1.3 | 1.1 | 1.4 | 34 | 76 | 16 | 2.5 | 1.7 | 1.4 | 1.3 |
| 12 | 1.7 | 1.4 | 1.3 | 1.1 | 1.4 | 31 | 77 | 15 | 2.4 | 1.7 | 1.4 | 1.3 |
| 13 | 1.7 | 1.4 | 1.2 | 1.1 | 1.4 | 27 | 87 | 15 | 2.2 | 1.7 | 1.3 | 1.3 |
| 14 | 1.6 | 1.4 | 1.2 | 1.1 | 1.4 | 25 | 90 | 16 | 2.1 | 1.7 | 1.3 | 1.3 |
| 15 | 1.7 | 1.4 | 1.2 | 1.1 | 1.4 | 25 | 94 | 17 | 2.0 | 1.6 | 1.3 | 1.3 |
| 16 | 1.7 | 1.3 | 1.2 | 1.0 | 1.3 | 25 | 94 | 16 | 1.9 | 1.6 | 1.3 | 1.3 |
| 17 | 1.7 | 1.3 | 1.2 | 1.1 | 1.3 | 29 | 90 | 16 | 1.8 | 1.6 | 1.3 | 1.3 |
| 18 | 1.7 | 1.4 | 1.2 | 1.1 | 2.3 | 37 | 82 | 14 | 1.8 | 1.7 | 1.3 | 1.3 |
| 19 | 1.7 | 1.4 | 1.2 | 1.1 | 1.3 | 49 | 70 | 12 | 1.8 | 1.6 | 1.6 | 1.2 |
| 20 | 1.7 | 1.4 | 1.2 | 1.2 | 1.3 | 61 | 60 | 11 | 1.8 | 1.4 | 2.1 | 1.2 |
| 21 | 1.7 | 1.3 | 1.2 | 1.2 | 1.3 | 73 | 58 | 10 | 1.6 | 1.4 | 1.6 | 1.2 |
| 22 | 1.7 | 1.3 | 1.2 | 1.2 | 1.3 | 91 | 53 | 9.3 | 1.6 | 1.5 | 1.5 | 1.2 |
| 23 | 1.7 | 1.3 | 1.2 | 1.2 | 1.3 | 97 | 50 | 8.8 | 1.6 | 1.5 | 1.4 | 1.2 |
| 24 | 1.7 | 1.3 | 1.2 | 1.2 | 1.3 | 88 | 50 | 8.0 | 1.6 | 1.5 | 1.4 | 1.2 |
| 25 | 1.7 | 1.3 | 1.2 | 1.2 | 1.3 | 88 | 51 | 7.3 | 1.6 | 1.5 | 1.4 | 1.3 |
| 26 | 1.7 | 1.3 | 1.2 | 1.2 | 1.3 | 92 | 52 | 6.9 | 1.6 | 1.5 | 1.3 | 1.2 |
| 27 | 1.7 | 1.5 | 1.2 | 1.2 | 1.3 | 94 | 55 | 6.1 | 1.6 | 1.4 | 1.3 | 1.2 |
| 28 | 1.7 | 1.4 | 1.1 | 1.2 | 10 | 90 | 52 | 5.5 | 1.7 | 1.4 | 1.3 | 1.2 |
| 29 | 1.8 | 1.4 | 1.1 | 1.2 | --- | 90 | 45 | 5.1 | 1.7 | 1.3 | 1.4 | 1.2 |
| 30 | 1.8 | 1.4 | 1.1 | 1.2 | --- | 130 | 38 | 4.7 | 1.6 | 1.3 | 1.4 | 1.3 |
| 31 | 1.7 | --- | 1.1 | 1.2 | --- | 139 | --- | 4.6 | --- | 1.3 | 1.5 | --- |
| TOTAL | 56.2 | 41.1 | 38.5 | 35.4 | 46.8 | 1811 | 2387 | 445.3 | 71.0 | 48.1 | 44.5 | 39.3 |
| MEAN | 1.81 | 1.37 | 1.24 | 1.14 | 1.67 | 58.4 | 79.6 | 14.4 | 2.37 | 1.55 | 1.44 | 1.31 |
| MAX | 3.0 | 1.6 | 1.4 | 1.3 | 10 | 139 | 136 | 31 | 4.3 | 1.7 | 2.3 | 1.7 |
| MIN | 1.6 | 1.3 | 1.1 | 1.0 | 1.2 | 25 | 38 | 4.6 | 1.6 | 1.3 | 1.3 | 1.2 |
| AC-FT | 111 | 82 | 76 | 70 | 93 | 3590 | 4730 | 883 | 141 | 95 | 88 | 78 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1977 | TOTAL | 881.68 | MEAN | 2.42 | MAX | 22 | MIN | .41 | AC-FT | 1750 |
| WTR YR 1978 | TOTAL | 5064.20 | MEAN | 13.9 | MAX | 139 | MIN | 1.0 | AC-FT | 10040 |

NOTE.--No gage-height record Oct. 11 to Nov. 11.

## 09489500 BLACK RIVER BELOW PUMPING PLANT, NEAR POINT OF PINES, AZ

LOCATION.--Lat 33°28'36", long 109°45'48", in W½ sec.32, T.2 N., R.25 E. (unsurveyed), Graham County, Hydrologic Unit 15060101, in San Carlos Indian Reservation on left bank 0.9 mi (1.4 km) downstream from Phelps Dodge Corp. pumping plant, 1.3 mi (2.1 km) downstream from Freezeout Creek, 8 mi (13 km) northwest of Point of Pines, and 63 mi (101 km) upstream from confluence with White River.

DRAINAGE AREA.--560 $mi^2$ (1,450 $km^2$).

PERIOD OF RECORD.--June 1953 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 5,725 ft (1,745.0 m), from topographic map.

REMARKS.--Records good. Water is diverted at pumping plant 0.9 mi (1.4 km) upstream and pumped into headwaters of Willow Creek (tributary of Eagle Creek) for mining, metallurgical treatment of ores, and domestic supply in vicinity of Morenci. (See sta 09445000.)

AVERAGE DISCHARGE (adjusted for diversion to Willow Creek).--25 years, 188 $ft^3/s$ (5.324 $m^3/s$), 136,200 acre-ft/yr (168 $hm^3/yr$); median of yearly mean discharges, 140 $ft^3/s$ (3.96 $m^3/s$), 101,000 acre-ft/yr (125 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,900 $ft^3/s$ (507 $m^3/s$) Oct. 19, 1972, gage height, 18.0 ft (5.49 m), from flood-marks, from rating curve extended above 5,000 $ft^3/s$ (140 $m^3/s$); minimum daily, 2.6 $ft^3/s$ (0.074 $m^3/s$) July 5, 1974.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*) and peak discharges above base of 500 $ft^3/s$ (14 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|
| Mar. 1 | 1915 | *5,980 | 169 | 10.3 | 3.14 |
| Apr. 1 | 0530 | 2,330 | 66.0 | 6.43 | 1.960 |

Minimum daily, 6.1 $ft^3/s$ (0.17 $m^3/s$) July 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 21 | 36 | 27 | 40 | 227 | 4110 | 2140 | 462 | 70 | 37 | 26 | 26 |
| 2 | 20 | 29 | 26 | 37 | 203 | 5740 | 1630 | 408 | 65 | 44 | 46 | 43 |
| 3 | 20 | 27 | 25 | 35 | 159 | 3870 | 1680 | 368 | 60 | 40 | 64 | 44 |
| 4 | 20 | 26 | 28 | 32 | 133 | 1960 | 1600 | 357 | 55 | 38 | 50 | 38 |
| 5 | 26 | 24 | 29 | 34 | 116 | 1490 | 1430 | 324 | 54 | 37 | 40 | 31 |
| 6 | 36 | 26 | 29 | 32 | 120 | 1320 | 1400 | 335 | 51 | 36 | 46 | 25 |
| 7 | 65 | 33 | 27 | 33 | 151 | 1120 | 1380 | 332 | 57 | 35 | 51 | 21 |
| 8 | 113 | 52 | 24 | 33 | 172 | 1010 | 1370 | 321 | 59 | 25 | 45 | 19 |
| 9 | 76 | 47 | 30 | 28 | 168 | 1010 | 1190 | 293 | 55 | 9.1 | 53 | 22 |
| 10 | 58 | 42 | 33 | 26 | 161 | 1010 | 1040 | 263 | 52 | 10 | 51 | 24 |
| 11 | 48 | 38 | 34 | 36 | 191 | 935 | 927 | 246 | 45 | 13 | 61 | 25 |
| 12 | 40 | 38 | 34 | 38 | 168 | 894 | 922 | 235 | 39 | 16 | 62 | 23 |
| 13 | 35 | 38 | 32 | 31 | 149 | 841 | 994 | 227 | 36 | 21 | 45 | 18 |
| 14 | 33 | 36 | 30 | 28 | 147 | 820 | 996 | 220 | 33 | 41 | 37 | 15 |
| 15 | 31 | 35 | 30 | 39 | 131 | 772 | 1040 | 218 | 32 | 23 | 29 | 17 |
| 16 | 29 | 33 | 31 | 57 | 125 | 731 | 996 | 214 | 30 | 14 | 20 | 19 |
| 17 | 26 | 33 | 34 | 48 | 111 | 771 | 926 | 208 | 26 | 9.0 | 15 | 23 |
| 18 | 26 | 32 | 26 | 50 | 90 | 881 | 833 | 198 | 25 | 6.1 | 11 | 27 |
| 19 | 26 | 32 | 31 | 41 | 91 | 1070 | 778 | 185 | 22 | 10 | 13 | 25 |
| 20 | 25 | 32 | 33 | 43 | 93 | 1270 | 735 | 171 | 20 | 6.9 | 43 | 21 |
| 21 | 24 | 32 | 25 | 35 | 107 | 1400 | 703 | 167 | 18 | 8.8 | 47 | 14 |
| 22 | 24 | 32 | 23 | 42 | 138 | 1580 | 654 | 159 | 16 | 28 | 50 | 11 |
| 23 | 24 | 30 | 26 | 39 | 162 | 2050 | 624 | 144 | 15 | 31 | 71 | 11 |
| 24 | 23 | 30 | 36 | 35 | 189 | 1830 | 596 | 132 | 13 | 27 | 57 | 20 |
| 25 | 22 | 30 | 34 | 30 | 217 | 1680 | 581 | 125 | 12 | 40 | 53 | 18 |
| 26 | 22 | 32 | 31 | 35 | 241 | 1640 | 564 | 116 | 10 | 48 | 54 | 25 |
| 27 | 21 | 32 | 33 | 41 | 242 | 1690 | 567 | 109 | 13 | 52 | 47 | 26 |
| 28 | 21 | 33 | 39 | 40 | 737 | 1650 | 555 | 98 | 19 | 42 | 38 | 29 |
| 29 | 25 | 32 | 42 | 42 | --- | 1650 | 514 | 91 | 27 | 32 | 34 | 29 |
| 30 | 35 | 29 | 45 | 50 | --- | 1660 | 479 | 82 | 22 | 28 | 30 | 21 |
| 31 | 43 | --- | 42 | 127 | --- | 1860 | --- | 76 | --- | 29 | 28 | --- |
| TOTAL | 1062 | 1001 | 973 | 1257 | 4941 | 50335 | 30046 | 6904 | 1053 | 836.9 | 1317 | 710 |
| MEAN | 34.3 | 33.4 | 31.4 | 40.5 | 176 | 1624 | 1002 | 223 | 35.1 | 27.0 | 42.5 | 23.7 |
| MAX | 113 | 52 | 45 | 127 | 737 | 5740 | 2140 | 462 | 70 | 52 | 71 | 44 |
| MIN | 20 | 24 | 23 | 26 | 90 | 731 | 479 | 76 | 10 | 6.1 | 11 | 11 |
| AC-FT | 2110 | 1990 | 1930 | 2490 | 9600 | 99840 | 59600 | 13690 | 2090 | 1660 | 2610 | 1410 |
| MEAN† | 51.4 | 46.4 | 38.6 | 45.8 | 182 | 1640 | 1030 | 247 | 59.0 | 43.0 | 59.6 | 41.8 |
| AC-FT† | 3160 | 2760 | 2370 | 2820 | 10100 | 100900 | 61130 | 15160 | 3510 | 2650 | 3670 | 2490 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1977 | TOTAL | 19044.0 | MEAN | 52.2 | MAX | 446 | MIN | 8.8 | AC-FT | 37770 | MEAN † | 64.6 | AC-FT † 46,760 |
| WTR YR 1978 | TOTAL | 100435.9 | MEAN | 275 | MAX | 5740 | MIN | 6.1 | AC-FT | 199200 | MEAN † | 291 | AC-FT † 210,700 |

† Adjusted for Willow Creek diversion from Black River, near Morenci, Ariz.

## 09489700 BIG BONITO CREEK NEAR FORT APACHE, AZ

LOCATION.--Lat 33°40'02", long 109°50'46", in NE¼ sec.28, T.4 N., R.24 E. (unsurveyed), Apache County, Hydrologic Unit 15060101, in Fort Apache Indian Reservation, near right bank on downstream side of pier of highway bridge, 1.9 mi (3.1 km) upstream from Tonto Creek, 3.7 mi (6.0 km) southeast of Chino Springs, and 12 mi (19 km) southeast of Fort Apache.

DRAINAGE AREA.--119 $mi^2$ (308 $km^2$).

PERIOD OF RECORD.--October 1957 to current year. Prior to October 1969 published as "Big Bonita Creek near Fort Apache."

REVISED RECORDS.--WRD Ariz. 1969: 1967.

GAGE.--Water-stage recorder. Altitude of gage is 5,910 ft (1,801 m), by barometer.

REMARKS.--Records good. No storage or diversion above station.

AVERAGE DISCHARGE.--21 years, 61.5 $ft^3/s$ (1.742 $m^3/s$), 44,560 acre-ft/yr (54.9 $hm^3/yr$); median of yearly mean discharges, 54 $ft^3/s$ (1.53 $m^3/s$), 39,100 acre-ft/yr (48 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,870 $ft^3/s$ (81.3 $m^3/s$) Mar. 3, 1978, gage height, 7.77 ft (2.368 m); maximum gage height, 8.43 ft (2.569 m) Oct. 20, 1972 (backwater from bridge downstream); minimum daily, 4.2 $ft^3/s$ (0.12 $m^3/s$) Nov. 30, 1975.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*) and peak discharges above base of 150 $ft^3/s$ (4.2 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) | Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Feb. 1 | 0145 | 239 | 6.77 | 3.78 | 1.152 | Mar. 23 | 0400 | 771 | 21.8 | 5.06 | 1.542 |
| Mar. 1 | 1500 | 2,630 | 74.4 | 7.55 | 2.301 | Apr. 1 | 1545 | 785 | 22.2 | 5.09 | 1.551 |
| Mar. 3 | 0015 | *2,870 | 81.3 | 7.77 | 2.368 | May 15 | 0415 | 209 | 5.92 | 3.30 | 1.006 |

Minimum daily, 7.3 $ft^3/s$ (0.21 $m^3/s$) Dec. 7, 20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 10 | 14 | 10 | 17 | 194 | 1820 | 757 | 217 | 59 | 12 | 100 | 15 |
| 2 | 9.9 | 13 | 10 | 15 | 133 | 2190 | 614 | 195 | 54 | 11 | 74 | 15 |
| 3 | 9.6 | 13 | 10 | 14 | 98 | 1500 | 533 | 168 | 51 | 11 | 51 | 14 |
| 4 | 10 | 12 | 10 | 14 | 82 | 569 | 490 | 155 | 48 | 10 | 53 | 13 |
| 5 | 12 | 12 | 10 | 13 | 74 | 394 | 461 | 164 | 46 | 9.7 | 41 | 12 |
| 6 | 26 | 15 | 8.8 | 12 | 77 | 324 | 461 | 181 | 44 | 9.3 | 32 | 11 |
| 7 | 98 | 21 | 7.3 | 13 | 98 | 259 | 472 | 162 | 42 | 12 | 31 | 11 |
| 8 | 69 | 18 | 8.0 | 10 | 103 | 236 | 479 | 147 | 39 | 13 | 32 | 10 |
| 9 | 46 | 16 | 9.6 | 11 | 93 | 241 | 382 | 137 | 36 | 14 | 37 | 10 |
| 10 | 36 | 15 | 9.2 | 14 | 83 | 226 | 299 | 138 | 34 | 14 | 50 | 10 |
| 11 | 30 | 16 | 9.7 | 13 | 87 | 190 | 271 | 145 | 32 | 13 | 49 | 10 |
| 12 | 26 | 15 | 8.3 | 12 | 75 | 175 | 283 | 150 | 30 | 13 | 40 | 10 |
| 13 | 23 | 14 | 7.4 | 9.0 | 68 | 154 | 338 | 164 | 28 | 12 | 32 | 10 |
| 14 | 21 | 14 | 8.3 | 12 | 63 | 142 | 361 | 185 | 27 | 11 | 26 | 10 |
| 15 | 20 | 12 | 9.8 | 16 | 57 | 134 | 386 | 198 | 25 | 10 | 22 | 9.8 |
| 16 | 18 | 12 | 10 | 20 | 54 | 129 | 392 | 190 | 23 | 10 | 21 | 12 |
| 17 | 17 | 12 | 7.8 | 22 | 45 | 144 | 361 | 175 | 21 | 10 | 20 | 15 |
| 18 | 17 | 12 | 11 | 21 | 44 | 186 | 318 | 155 | 20 | 11 | 23 | 12 |
| 19 | 15 | 12 | 10 | 22 | 50 | 259 | 294 | 137 | 19 | 12 | 35 | 10 |
| 20 | 15 | 12 | 7.3 | 22 | 49 | 364 | 288 | 126 | 18 | 11 | 60 | 9.8 |
| 21 | 14 | 11 | 8.0 | 17 | 62 | 455 | 283 | 117 | 17 | 10 | 40 | 9.4 |
| 22 | 14 | 11 | 15 | 19 | 76 | 589 | 273 | 112 | 16 | 10 | 27 | 9.3 |
| 23 | 14 | 11 | 11 | 24 | 88 | 704 | 266 | 110 | 15 | 18 | 20 | 9.2 |
| 24 | 14 | 11 | 10 | 20 | 94 | 575 | 268 | 104 | 14 | 35 | 23 | 9.1 |
| 25 | 13 | 11 | 9.6 | 21 | 97 | 536 | 276 | 94 | 13 | 60 | 30 | 10 |
| 26 | 12 | 10 | 9.2 | 26 | 100 | 564 | 291 | 85 | 13 | 40 | 27 | 16 |
| 27 | 12 | 10 | 12 | 28 | 94 | 608 | 312 | 78 | 13 | 25 | 18 | 12 |
| 28 | 12 | 10 | 19 | 28 | 584 | 602 | 294 | 71 | 15 | 22 | 14 | 11 |
| 29 | 15 | 10 | 19 | 32 | --- | 601 | 276 | 66 | 20 | 22 | 13 | 9.7 |
| 30 | 26 | 10 | 21 | 41 | --- | 618 | 253 | 63 | 15 | 40 | 14 | 9.3 |
| 31 | 16 | --- | 19 | 150 | --- | 661 | --- | 63 | --- | 60 | 15 | --- |
| TOTAL | 690.5 | 385 | 335.3 | 708.0 | 2822 | 16149 | 11032 | 4252 | 847 | 571.0 | 1070 | 334.6 |
| MEAN | 22.3 | 12.8 | 10.8 | 22.8 | 101 | 521 | 368 | 137 | 28.2 | 18.4 | 34.5 | 11.2 |
| MAX | 98 | 21 | 21 | 150 | 584 | 2190 | 757 | 217 | 59 | 60 | 100 | 16 |
| MIN | 9.6 | 10 | 7.3 | 9.0 | 44 | 129 | 253 | 63 | 13 | 9.3 | 13 | 9.1 |
| AC-FT | 1370 | 764 | 665 | 1400 | 5600 | 32030 | 21880 | 8430 | 1680 | 1130 | 2120 | 664 |

CAL YR 1977 TOTAL 9489.2 MEAN 26.0 MAX 158 MIN 5.3 AC-FT 18820
WTR YR 1978 TOTAL 39196.4 MEAN 107 MAX 2190 MIN 7.3 AC-FT 77750

NOTE.--No gage-height record Aug. 11 to Sept. 12.

## 09490500 BLACK RIVER NEAR FORT APACHE, AZ

LOCATION.--Lat 33°42'46", long 110°12'40", in NW¼ sec.12, T.4 N., R.20 E. (unsurveyed), Gila County, Hydrologic Unit 15060101, on downstream side of first pier from right on highway bridge, 5 mi (8 km) upstream from confluence with White River and 14 mi (23 km) west of Fort Apache.

DRAINAGE AREA.--1,232 $mi^2$ (3,191 $km^2$).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1912 to December 1915, September 1916, October 1917 to January 1918, April 1918, October 1957 to current year. Monthly discharge only for some periods, published in WSP 1313.

REVISED RECORDS.--WSP 1313: 1914-15, Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 4,345 ft (1,324.4 m), from river-profile map. November 1912 to July 1918, nonrecording gages or water-stage recorders at several sites within 1 mi (2 km) of present site at various datums.

REMARKS.--Records good. One transbasin diversion for industrial and municipal use (see record of Willow Creek diversion from Black River, near Morenci). Negligible storage in several small recreational lakes.

AVERAGE DISCHARGE.--24 years (water years 1913-15, 1958-78), 366 $ft^3/s$ (10.37 $m^3/s$), 265,200 acre-ft/yr (327 $hm^3/yr$); median of yearly mean discharges, 280 $ft^3/s$ (7.93 $m^3/s$), 203,000 acre-ft/yr (250 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 33,200 $ft^3/s$ (940 $m^3/s$) Mar. 2, 1978, gage height, 22.33 ft (6.806 m), from rating curve extended above 8,900 $ft^3/s$ (250 $m^3/s$) on basis of slope-area measurement of peak flow; minimum daily, 11 $ft^3/s$ (0.31 $m^3/s$) July 6, 1974.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*), (from rating curve extended above 8,900 $ft^3/s$ or 250 $m^3/s$ on basis of slope-area measurement of peak flow) and peak discharges above base of 1,000 $ft^3/s$ (28 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) | Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Jan. 31 | 1530 | 3,220 | 91.2 | 8.12 | 2.475 | Mar. 12 | 2315 | 3,070 | 86.9 | 7.94 | 2.420 |
| Feb. 11 | 1045 | 2,390 | 67.7 | 7.11 | 2.167 | Apr. 1 | 1830 | 3,890 | 110 | 8.81 | 2.685 |
| Mar. 2 | 0245 | *33,200 | 940 | 22.33 | 6.806 | | | | | | |

Minimum daily, 18 $ft^3/s$ (0.51 $m^3/s$) July 12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 36 | 60 | 46 | 75 | 2430 | 15900 | 3510 | 842 | 130 | 33 | 59 | 42 |
| 2 | 34 | 62 | 45 | 71 | 1270 | 24200 | 3460 | 760 | 120 | 30 | 111 | 43 |
| 3 | 32 | 55 | 42 | 66 | 729 | 15200 | 3230 | 660 | 110 | 26 | 107 | 42 |
| 4 | 30 | 50 | 43 | 63 | 500 | 4720 | 2800 | 613 | 105 | 35 | 100 | 51 |
| 5 | 29 | 46 | 43 | 60 | 370 | 3170 | 2600 | 536 | 100 | 32 | 130 | 53 |
| 6 | 43 | 48 | 44 | 59 | 317 | 3440 | 2470 | 550 | 95 | 30 | 91 | 48 |
| 7 | 59 | 52 | 47 | 57 | 362 | 2740 | 2090 | 582 | 90 | 29 | 74 | 43 |
| 8 | 152 | 56 | 45 | 58 | 555 | 2230 | 2100 | 543 | 85 | 28 | 73 | 37 |
| 9 | 169 | 62 | 43 | 56 | 532 | 1920 | 1970 | 491 | 86 | 27 | 74 | 34 |
| 10 | 140 | 72 | 41 | 53 | 423 | 1740 | 1670 | 409 | 81 | 26 | 74 | 31 |
| 11 | 108 | 66 | 44 | 57 | 1890 | 1730 | 1470 | 360 | 76 | 23 | 88 | 30 |
| 12 | 90 | 63 | 49 | 56 | 1500 | 1920 | 1390 | 343 | 71 | 18 | 93 | 30 |
| 13 | 77 | 60 | 50 | 60 | 732 | 2270 | 1490 | 341 | 65 | 22 | 93 | 31 |
| 14 | 69 | 58 | 49 | 61 | 690 | 1910 | 1600 | 350 | 60 | 23 | 81 | 31 |
| 15 | 63 | 58 | 47 | 59 | 720 | 1450 | 1630 | 368 | 56 | 23 | 67 | 31 |
| 16 | 58 | 56 | 47 | 68 | 702 | 1260 | 1650 | 384 | 52 | 36 | 58 | 31 |
| 17 | 55 | 54 | 49 | 97 | 545 | 1210 | 1580 | 366 | 49 | 28 | 51 | 35 |
| 18 | 52 | 54 | 45 | 158 | 363 | 1290 | 1460 | 335 | 46 | 24 | 45 | 45 |
| 19 | 50 | 52 | 51 | 133 | 291 | 1500 | 1340 | 302 | 43 | 20 | 40 | 40 |
| 20 | 48 | 51 | 51 | 107 | 277 | 1840 | 1270 | 271 | 40 | 19 | 36 | 35 |
| 21 | 46 | 52 | 46 | 97 | 283 | 2120 | 1230 | 247 | 36 | 19 | 41 | 35 |
| 22 | 45 | 52 | 43 | 100 | 374 | 2300 | 1180 | 232 | 34 | 19 | 63 | 30 |
| 23 | 44 | 50 | 43 | 97 | 482 | 3160 | 1110 | 230 | 32 | 21 | 61 | 35 |
| 24 | 43 | 49 | 51 | 112 | 540 | 3160 | 1060 | 220 | 30 | 21 | 63 | 35 |
| 25 | 42 | 48 | 50 | 86 | 577 | 2720 | 1050 | 210 | 28 | 34 | 73 | 35 |
| 26 | 42 | 47 | 55 | 62 | 595 | 2670 | 1050 | 190 | 26 | 39 | 62 | 40 |
| 27 | 41 | 48 | 57 | 67 | 609 | 2760 | 1070 | 180 | 25 | 61 | 59 | 45 |
| 28 | 41 | 47 | 57 | 77 | 3200 | 2760 | 1080 | 170 | 24 | 62 | 57 | 30 |
| 29 | 44 | 47 | 65 | 88 | --- | 2760 | 1010 | 160 | 23 | 60 | 52 | 35 |
| 30 | 46 | 48 | 72 | 93 | --- | 2720 | 931 | 150 | 29 | 50 | 47 | 30 |
| 31 | 54 | --- | 76 | 1660 | --- | 3000 | --- | 140 | --- | 56 | 43 | --- |
| TOTAL | 1882 | 1623 | 1536 | 4013 | 21658 | 119770 | 51551 | 11535 | 1847 | 974 | 2166 | 1113 |
| MEAN | 60.7 | 54.1 | 49.5 | 129 | 774 | 3864 | 1718 | 372 | 61.6 | 31.4 | 69.9 | 37.1 |
| MAX | 169 | 72 | 76 | 1660 | 3200 | 24200 | 3510 | 842 | 130 | 62 | 130 | 53 |
| MIN | 29 | 46 | 41 | 53 | 277 | 1210 | 931 | 140 | 23 | 18 | 36 | 30 |
| AC-FT | 3730 | 3220 | 3050 | 7960 | 42960 | 237600 | 102300 | 22880 | 3660 | 1930 | 4300 | 2210 |

CAL YR 1977 TOTAL 32481 MEAN 89.0 MAX 715 MIN 19 AC-FT 64430
WTR YR 1978 TOTAL 219668 MEAN 602 MAX 24200 MIN 18 AC-FT 435700

09490500 BLACK RIVER NEAR FORT APACHE, AZ--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--January 1976 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | TUR-BID-ITY (JTU) | TUR-BID-ITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 12... | 1400 | 80 | 120 | 8.3 | 18.0 | 3 | -- | 8.8 |
| NOV | | | | | | | | |
| 07... | 1100 | 47 | 130 | 7.8 | 10.0 | 3 | -- | 9.7 |
| DEC | | | | | | | | |
| 07... | 1630 | 38 | 142 | 9.6 | 5.0 | 1 | -- | 11.1 |
| JAN | | | | | | | | |
| 10... | 1400 | 49 | 128 | 7.7 | 6.0 | 1 | -- | 10.5 |
| FEB | | | | | | | | |
| 14... | 1345 | 710 | 110 | 8.3 | 4.0 | 15 | -- | 11.0 |
| MAR | | | | | | | | |
| 15... | 1230 | 1650 | 100 | -- | 9.0 | 8 | -- | 9.8 |
| APR | | | | | | | | |
| 18... | 1500 | 1620 | 70 | 7.5 | 12.0 | 4 | -- | 9.0 |
| JUN | | | | | | | | |
| 07... | 1100 | 43 | 100 | 7.3 | 21.0 | 0 | -- | 8.3 |
| JUL | | | | | | | | |
| 13... | 1415 | 16 | 153 | 8.6 | 28.0 | -- | .40 | 8.5 |
| AUG | | | | | | | | |
| 16... | 1035 | 30 | 135 | 8.2 | 23.5 | -- | 1.3 | 7.6 |
| SEP | | | | | | | | |
| 12... | 1300 | 20 | 150 | 8.2 | 24.0 | 1 | -- | 7.8 |

| DATE | COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | BICAR-BONATE (MG/L AS HCO3) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 12... | 28 | 56 | 0 | 14 | 5.2 | 5.9 | .3 | 1.5 | 74 |
| NOV | | | | | | | | | |
| 07... | 7 | 64 | 0 | 15 | 6.4 | 7.2 | .4 | 1.5 | 86 |
| DEC | | | | | | | | | |
| 07... | 0 | 78 | 7 | 21 | 6.3 | 6.9 | .3 | 1.4 | 87 |
| JAN | | | | | | | | | |
| 10... | <1 | 58 | 0 | 14 | 5.5 | 6.5 | .4 | 1.3 | 73 |
| FEB | | | | | | | | | |
| 14... | 6 | 51 | 13 | 12 | 5.0 | 3.5 | .2 | 1.1 | 46 |
| MAR | | | | | | | | | |
| 15... | 3 | 46 | 18 | 11 | 4.5 | 3.2 | .2 | 1.2 | 34 |
| APR | | | | | | | | | |
| 18... | 0 | 33 | 7 | 8.4 | 2.9 | 2.4 | .2 | .8 | 31 |
| JUN | | | | | | | | | |
| 07... | 3 | 47 | 0 | 12 | 4.1 | 4.4 | .3 | 1.4 | 61 |
| JUL | | | | | | | | | |
| 13... | 11 | 74 | 0 | 19 | 6.4 | 6.7 | .3 | 1.9 | 94 |
| AUG | | | | | | | | | |
| 16... | 5 | 59 | 0 | 15 | 5.2 | 5.7 | .3 | 1.7 | 80 |
| SEP | | | | | | | | | |
| 12... | K6 | 71 | 0 | 18 | 6.3 | 6.7 | .3 | 1.8 | 94 |

< Actual value is known to be less than value shown.
K Based on non-ideal colony count.

09490500 BLACK RIVER NEAR FORT APACHE, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | CARBONATE (MG/L AS CO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | SOLIDS, DISSOLVED (TONS PER AC-FT) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 12... | 0 | 4.3 | 1.2 | .2 | 22 | 95 | 91 | .13 |
| NOV | | | | | | | | |
| 07... | 0 | 5.2 | 1.5 | .1 | 20 | 93 | 99 | .13 |
| DEC | | | | | | | | |
| 07... | 0 | 5.5 | 1.5 | .1 | 22 | 88 | 108 | .12 |
| JAN | | | | | | | | |
| 10... | 0 | 3.2 | 1.8 | .0 | 7.4 | 89 | 76 | .12 |
| FEB | | | | | | | | |
| 14... | 0 | 16 | 1.4 | .1 | 17 | 79 | 79 | .11 |
| MAR | | | | | | | | |
| 15... | -- | 15 | 1.4 | .1 | 19 | 71 | 74 | .10 |
| APR | | | | | | | | |
| 18... | 0 | 9.2 | 2.5 | .1 | 17 | 56 | 60 | .08 |
| JUN | | | | | | | | |
| 07... | 0 | 5.4 | 1.1 | .1 | 19 | 73 | 78 | .10 |
| JUL | | | | | | | | |
| 13... | 0 | 7.7 | 1.6 | .1 | 18 | 91 | 108 | .12 |
| AUG | | | | | | | | |
| 16... | 0 | 5.0 | 1.6 | .1 | 23 | 83 | 97 | .11 |
| SEP | | | | | | | | |
| 12... | 0 | 5.9 | 1.6 | .1 | 24 | 95 | 111 | .13 |

| DATE | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | NITROGEN, TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P) |
|---|---|---|---|---|---|---|
| OCT | | | | | | |
| 12... | .06 | -- | .16 | .22 | .06 | -- |
| NOV | | | | | | |
| 07... | .01 | -- | .35 | .36 | .04 | -- |
| DEC | | | | | | |
| 07... | .02 | .01 | .56 | .58 | .07 | .15 |
| JAN | | | | | | |
| 10... | .09 | .03 | .19 | .28 | .04 | .01 |
| FEB | | | | | | |
| 14... | .05 | .01 | .13 | .18 | .11 | .05 |
| MAR | | | | | | |
| 15... | .42 | .34 | 1.5 | 1.9 | .17 | .07 |
| APR | | | | | | |
| 18... | .03 | .15 | .44 | .47 | .06 | .12 |
| JUN | | | | | | |
| 07... | .02 | .02 | .15 | .17 | .10 | .08 |
| JUL | | | | | | |
| 13... | .01 | .04 | .44 | .45 | .03 | .02 |
| AUG | | | | | | |
| 16... | .01 | .01 | .49 | .50 | .05 | .05 |
| SEP | | | | | | |
| 12... | .02 | .01 | .34 | .36 | .05 | .04 |

09490500 BLACK RIVER NEAR FORT APACHE, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) | BORON, TOTAL RECOV-ERABLE (UG/L AS B) | BORON, DIS-SOLVED (UG/L AS B) | CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) | IRON, TOTAL RECOV-ERABLE (UG/L AS FE) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 12... | 1 | 0 | 40 | 10 | <10 | 5 | <10 | 190 |
| NOV | | | | | | | | |
| 07... | 1 | 400 | 40 | 20 | 2 | 12 | 9 | 350 |
| DEC | | | | | | | | |
| 07... | 1 | 0 | 70 | 6 | 0 | 0 | 5 | 40 |
| JAN | | | | | | | | |
| 10... | 0 | 0 | 60 | 9 | 0 | 10 | 3 | 70 |
| FEB | | | | | | | | |
| 14... | 0 | 100 | 70 | 20 | 0 | 10 | 6 | 1400 |
| MAR | | | | | | | | |
| 15... | 1 | 0 | 60 | 10 | 3 | 20 | 6 | 1200 |
| APR | | | | | | | | |
| 18... | 2 | 300 | 80 | 10 | 1 | 0 | 4 | 380 |
| JUN | | | | | | | | |
| 07... | 1 | 200 | 80 | 9 | 2 | 0 | 7 | 50 |
| JUL | | | | | | | | |
| 13... | 0 | 200 | 40 | 10 | 0 | 0 | 7 | 100 |
| AUG | | | | | | | | |
| 16... | 1 | 300 | 60 | 10 | 1 | 0 | 6 | 40 |
| SEP | | | | | | | | |
| 12... | 1 | 0 | 60 | 30 | 3 | 0 | 6 | 80 |

| DATE | IRON, DIS-SOLVED (UG/L AS FE) | LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) | MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) | MANGA-NESE, DIS-SOLVED (UG/L AS MN) | MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) | SELE-NIUM, TOTAL (UG/L AS SE) | SILVER, TOTAL RECOV-ERABLE (UG/L AS AG) | ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 12... | 50 | <100 | 10 | 4 | .0 | 0 | <10 | 30 |
| NOV | | | | | | | | |
| 07... | 50 | 14 | 4 | 8 | .0 | 0 | 0 | 40 |
| DEC | | | | | | | | |
| 07... | 20 | 3 | 10 | 10 | .1 | 0 | 0 | 20 |
| JAN | | | | | | | | |
| 10... | 40 | 2 | 10 | 20 | .0 | 0 | 0 | 20 |
| FEB | | | | | | | | |
| 14... | 50 | 9 | 20 | 0 | .4 | 0 | 8 | 20 |
| MAR | | | | | | | | |
| 15... | 30 | 7 | 30 | 0 | .0 | 0 | 0 | 20 |
| APR | | | | | | | | |
| 18... | 40 | 6 | 20 | 0 | .0 | 0 | 0 | 0 |
| JUN | | | | | | | | |
| 07... | 0 | 7 | 10 | 5 | .0 | 0 | 0 | 10 |
| JUL | | | | | | | | |
| 13... | 30 | 3 | 20 | 0 | .0 | 0 | 0 | 10 |
| AUG | | | | | | | | |
| 16... | <10 | 4 | 10 | 3 | .0 | 0 | 0 | 20 |
| SEP | | | | | | | | |
| 12... | 30 | 3 | 10 | 0 | .0 | 0 | 0 | 10 |

< Actual value is known to be less than value shown.

09490500 BLACK RIVER NEAR FORT APACHE, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | CARBON, ORGANIC TOTAL (MG/L AS C) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS (UG/L) | PHYTO-PLANK-TON, TOTAL (CELLS PER ML) |
|---|---|---|---|---|
| OCT | | | | |
| 12... | 2.0 | .00 | -- | -- |
| NOV | | | | |
| 07... | 1.6 | .00 | 7 | -- |
| DEC | | | | |
| 07... | .7 | .00 | 5 | -- |
| JAN | | | | |
| 10... | 18 | .00 | 1 | -- |
| FEB | | | | |
| 14... | 5.0 | .00 | 2 | -- |
| MAR | | | | |
| 15... | 3.9 | .00 | 2 | -- |
| APR | | | | |
| 18... | 2.5 | .00 | 3 | -- |
| JUN | | | | |
| 07... | 1.3 | .00 | 1 | 570 |
| JUL | | | | |
| 13... | 2.2 | .00 | 2 | -- |
| AUG | | | | |
| 16... | 2.5 | .00 | 0 | -- |
| SEP | | | | |
| 12... | 2.0 | .00 | 5 | -- |

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

PHYTOPLANKTON

| | |
|---|---|
| DATE | JUN 7,78 |
| TIME | 1100 |
| TOTAL CELLS/ML | 570 |
| DIVERSITY: DIVISION | 1.0 |
| .CLASS | 1.0 |
| ..ORDER | 1.1 |
| ...FAMILY | 2.5 |
| ....GENUS | 2.5 |

| ORGANISM | CELLS /ML | PER-CENT |
|---|---|---|
| CHRYSOPHYTA | | |
| .BACILLARIOPHYCEAE | | |
| ..CENTRALES | | |
| ...COSCINODISCACEAE | | |
| ....CYCLOTELLA | 15 | 3 |
| ..PENNALES | | |
| ...ACHNANTHACEAE | | |
| ....COCCONEIS | 59 | 10 |
| ...CYMBELLACEAE | | |
| ....CYMBELLA | 59 | 10 |
| ...EUNOTIACEAE | | |
| ....EUNOTIA | 15 | 3 |
| ...GOMPHONEMATACEAE | | |
| ....GOMPHONEMA | 100# | 18 |
| ...NAVICULACEAE | | |
| ....NAVICULA | 59 | 10 |
| ...NITZSCHIACEAE | | |
| ....NITZSCHIA | 29 | 5 |
| CYANOPHYTA (BLUE-GREEN ALGAE) | | |
| .CYANOPHYCEAE | | |
| ..HORMOGONALES | | |
| ...NOSTOCACEAE | | |
| ....ANABAENA | 230# | 41 |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

## 09490800 NORTH FORK WHITE RIVER NEAR GREER, AZ

LOCATION.--Lat 34°00'55", long 109°38'37", in SW¼ sec.7, T.7 N., R.26 E. (unsurveyed), Apache County, Hydrologic Unit 15060102, in Fort Apache Indian Reservation, on right bank 300 ft (91 m) upstream from Bear Cienega Creek and 11 mi (18 km) west of Greer.

DRAINAGE AREA.--39 $mi^2$ (101 $km^2$), approximately.

PERIOD OF RECORD.--June 1965 to September 1978 (discontinued).

GAGE.--Water-stage recorder. Datum of gage is 8,372 ft (2,551.8 m). Prior to Nov. 13, 1965, at datum 1.08 ft (0.329 m) higher.

REMARKS.--Records poor.

AVERAGE DISCHARGE.--13 years, 24.6 $ft^3/s$ (0.697 $m^3/s$), 17,820 acre-ft/yr (22.0 $hm^3/yr$); median of yearly mean discharges, 22 $ft^3/s$ (0.62 $m^3/s$) 15,900 acre-ft/yr (20 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 510 $ft^3/s$ (14.4 $m^3/s$) Apr. 28, 1973, gage height, 4.15 ft (1.265 m); minimum daily, 4.6 $ft^3/s$ (0.13 $m^3/s$) July 29, 1978.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*) and peak discharges above base of 100 $ft^3/s$ (2.8 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) | Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Oct. 6 | 2015 | 101 | 2.86 | 2.94 | 0.896 | Apr. 3 | 1800 | 107 | 3.03 | 2.56 | 0.780 |
| Feb. 11 | 1130 | 118 | 3.34 | 2.91 | 0.887 | Apr. 7 | 1915 | 119 | 3.37 | 2.71 | 0.826 |
| Mar. 30 | 1600 | *153 | 4.33 | 3.08 | 0.939 | Apr. 14 | 1830 | 130 | 3.68 | 2.87 | 0.875 |

Minimum daily, 4.6 $ft^3/s$ (0.13 $m^3/s$) July 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 9.1 | 12 | 5.0 | 6.7 | 10 | 28 | 104 | 66 | 70 | 18 | 15 | 8.0 |
| 2 | 8.7 | 12 | 5.0 | 9.0 | 10 | 58 | 87 | 62 | 65 | 18 | 12 | 9.4 |
| 3 | 11 | 11 | 5.0 | 8.0 | 10 | 20 | 90 | 60 | 65 | 16 | 6.8 | 8.0 |
| 4 | 16 | 10 | 6.0 | 8.4 | 10 | 15 | 88 | 59 | 60 | 16 | 13 | 7.4 |
| 5 | 11 | 7.9 | 8.0 | 6.8 | 11 | 15 | 87 | 61 | 60 | 15 | 9.8 | 7.1 |
| 6 | 44 | 11 | 10 | 7.0 | 11 | 15 | 91 | 63 | 58 | 14 | 5.9 | 7.1 |
| 7 | 45 | 11 | 13 | 7.8 | 11 | 15 | 96 | 60 | 56 | 10 | 5.6 | 7.4 |
| 8 | 27 | 10 | 10 | 7.0 | 12 | 15 | 84 | 62 | 55 | 11 | 10 | 7.7 |
| 9 | 22 | 10 | 12 | 7.0 | 12 | 14 | 66 | 60 | 54 | 12 | 9.4 | 7.7 |
| 10 | 19 | 10 | 12 | 7.6 | 12 | 14 | 60 | 60 | 53 | 12 | 11 | 8.0 |
| 11 | 17 | 10 | 12 | 6.8 | 95 | 13 | 59 | 62 | 53 | 12 | 11 | 7.7 |
| 12 | 16 | 10 | 14 | 7.0 | 95 | 20 | 71 | 66 | 51 | 12 | 13 | 7.4 |
| 13 | 15 | 10 | 11 | 7.0 | 73 | 12 | 87 | 71 | 49 | 10 | 9.4 | 9.3 |
| 14 | 14 | 9.4 | 12 | 7.0 | 34 | 12 | 96 | 81 | 49 | 16 | 80 | 8.5 |
| 15 | 13 | 8.7 | 10 | 7.1 | 14 | 16 | 95 | 89 | 46 | 12 | 7.7 | 8.1 |
| 16 | 12 | 7.8 | 8.1 | 6.9 | 10 | 19 | 83 | 91 | 44 | 8.7 | 7.4 | 14 |
| 17 | 12 | 9.6 | 12 | 7.0 | 10 | 21 | 73 | 88 | 40 | 7.7 | 7.4 | 15 |
| 18 | 12 | 7.8 | 7.4 | 7.0 | 10 | 25 | 63 | 82 | 37 | 10 | 8.0 | 9.7 |
| 19 | 11 | 5.2 | 7.0 | 7.0 | 10 | 33 | 61 | 80 | 35 | 14 | 8.0 | 9.0 |
| 20 | 11 | 5.3 | 8.1 | 7.0 | 10 | 42 | 60 | 78 | 33 | 12 | 17 | 8.5 |
| 21 | 11 | 6.3 | 7.5 | 7.0 | 10 | 49 | 59 | 79 | 31 | 9.8 | 15 | 8.4 |
| 22 | 11 | 7.4 | 7.5 | 7.0 | 10 | 64 | 57 | 81 | 30 | 8.0 | 14 | 8.9 |
| 23 | 11 | 5.8 | 7.1 | 7.0 | 10 | 66 | 56 | 81 | 28 | 8.4 | 12 | 11 |
| 24 | 11 | 8.7 | 6.8 | 7.0 | 10 | 66 | 59 | 80 | 25 | 18 | 12 | 12 |
| 25 | 10 | 5.0 | 8.5 | 7.0 | 10 | 71 | 62 | 80 | 24 | 24 | 12 | 14 |
| 26 | 9.9 | 6.7 | 6.5 | 8.0 | 10 | 80 | 69 | 80 | 23 | 9.4 | 10 | 11 |
| 27 | 9.7 | 5.0 | 7.0 | 8.0 | 14 | 90 | 74 | 75 | 23 | 7.1 | 8.7 | 8.7 |
| 28 | 9.2 | 4.8 | 7.8 | 8.0 | 33 | 97 | 73 | 75 | 24 | 5.0 | 8.0 | 7.6 |
| 29 | 26 | 5.0 | 7.4 | 8.0 | --- | 108 | 72 | 75 | 22 | 4.6 | 8.0 | 7.1 |
| 30 | 17 | 5.0 | 7.0 | 8.0 | --- | 108 | 69 | 70 | 20 | 4.8 | 8.0 | 7.3 |
| 31 | 13 | --- | 6.8 | 8.0 | --- | 101 | --- | 70 | --- | 4.8 | 8.0 | --- |
| TOTAL | 484.6 | 248.4 | 267.5 | 228.1 | 577 | 1322 | 2251 | 2247 | 1283 | 360.3 | 383.1 | 271.0 |
| MEAN | 15.6 | 8.28 | 8.63 | 7.36 | 20.6 | 42.6 | 75.0 | 72.5 | 42.8 | 11.6 | 12.4 | 9.03 |
| MAX | 45 | 12 | 14 | 9.0 | 95 | 108 | 104 | 91 | 70 | 24 | 80 | 15 |
| MIN | 8.7 | 4.8 | 5.0 | 6.7 | 10 | 12 | 56 | 59 | 20 | 4.6 | 5.6 | 7.1 |
| AC-FT | 961 | 493 | 531 | 452 | 1140 | 2620 | 4460 | 4460 | 2540 | 715 | 760 | 538 |

CAL YR 1977 TOTAL 5811.9 MEAN 15.9 MAX 80 MIN 4.7 AC-FT 11530
WTR YR 1978 TOTAL 9923.0 MEAN 27.2 MAX 108 MIN 4.6 AC-FT 19680

## 09491000 NORTH FORK WHITE RIVER NEAR McNARY, AZ

LOCATION.--Lat 34°02'47", long 109°44'02", in E½ sec.31, T.8 N., R.25 E. (unsurveyed), Apache County, Hydrologic Unit 15060102, in Fort Apache Indian Reservation, on left bank 1.9 mi (3.1 km) downstream from Paradise Creek and 7 mi (11 km) southeast of McNary.

DRAINAGE AREA.--66 $mi^2$ (171 $km^2$), approximately.

PERIOD OF RECORD.--June 1945 to June 1947, May 1948 to June 1949, May 1950 to September 1954 (monthly discharge only, July to September 1954), June 1957 to current year. Maximum discharge only for water years 1955-56, published in WSP 1513. Prior to Oct. 1, 1963, published as White River near McNary.

REVISED RECORDS.--WSP 1243: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 7,723 ft (2,354.0 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for winter periods, which are poor. No storage above station. Water diverted about 5 mi (8 km) upstream from station for use at McNary.

AVERAGE DISCHARGE.--26 years (water years 1946, 1951-53, 1958-78), 43.1 $ft^3/s$ (1.221 $m^3/s$), 31,230 acre-ft/yr (38.5 $hm^3/yr$); median of yearly mean discharges, 40 $ft^3/s$ (1.13 $m^3/s$), 29,000 acre-ft/yr (36 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,290 $ft^3/s$ (36.5 $m^3/s$) Sept. 19, 1946, gage height, 5.36 ft (1.634 m), from rating curve extended above 350 $ft^3/s$ (9.9 $m^3/s$); minimum recorded, 4 $ft^3/s$ (0.11 $m^3/s$) Nov. 19, 1948, and Nov. 29, 1950, caused by ice jam upstream.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 455 $ft^3/s$ (12.9 $m^3/s$) Mar. 31, gage height, 3.46 ft (1.055 m), base discharge, 180 $ft^3/s$ (5.1 $m^3/s$); minimum daily, 11 $ft^3/s$ (0.31 $m^3/s$) Jan. 16, 17, Sept. 12, 19-22, 28-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 12 | 19 | 18 | 15 | 15 | 22 | 340 | 143 | 120 | 22 | 23 | 14 |
| 2 | 12 | 18 | 18 | 18 | 17 | 23 | 258 | 125 | 120 | 21 | 25 | 14 |
| 3 | 12 | 18 | 17 | 23 | 17 | 25 | 242 | 113 | 110 | 20 | 16 | 14 |
| 4 | 18 | 17 | 18 | 20 | 17 | 27 | 237 | 105 | 110 | 18 | 20 | 13 |
| 5 | 15 | 18 | 19 | 17 | 17 | 30 | 220 | 109 | 100 | 18 | 22 | 13 |
| 6 | 47 | 23 | 22 | 15 | 17 | 35 | 224 | 117 | 97 | 17 | 17 | 13 |
| 7 | 59 | 21 | 22 | 13 | 17 | 40 | 233 | 108 | 95 | 16 | 16 | 13 |
| 8 | 34 | 20 | 21 | 23 | 17 | 41 | 213 | 108 | 93 | 17 | 18 | 12 |
| 9 | 28 | 20 | 20 | 26 | 17 | 41 | 158 | 103 | 86 | 18 | 20 | 12 |
| 10 | 26 | 20 | 22 | 26 | 17 | 38 | 132 | 103 | 76 | 18 | 18 | 12 |
| 11 | 24 | 20 | 21 | 14 | 17 | 35 | 125 | 110 | 75 | 18 | 18 | 12 |
| 12 | 22 | 20 | 20 | 12 | 17 | 35 | 150 | 110 | 73 | 18 | 23 | 11 |
| 13 | 21 | 20 | 19 | 13 | 16 | 33 | 186 | 146 | 69 | 17 | 19 | 12 |
| 14 | 20 | 18 | 18 | 13 | 15 | 31 | 213 | 181 | 66 | 21 | 17 | 12 |
| 15 | 19 | 17 | 17 | 13 | 15 | 32 | 225 | 215 | 62 | 21 | 16 | 12 |
| 16 | 19 | 16 | 16 | 11 | 15 | 32 | 207 | 220 | 59 | 16 | 15 | 17 |
| 17 | 16 | 17 | 16 | 11 | 15 | 37 | 180 | 206 | 54 | 15 | 15 | 17 |
| 18 | 18 | 16 | 15 | 12 | 15 | 46 | 152 | 168 | 49 | 15 | 14 | 12 |
| 19 | 18 | 14 | 15 | 14 | 15 | 64 | 141 | 179 | 46 | 19 | 19 | 11 |
| 20 | 18 | 14 | 15 | 14 | 15 | 85 | 137 | 168 | 42 | 18 | 25 | 11 |
| 21 | 18 | 14 | 15 | 14 | 15 | 103 | 135 | 168 | 39 | 17 | 20 | 11 |
| 22 | 18 | 15 | 15 | 14 | 15 | 164 | 126 | 173 | 37 | 14 | 20 | 11 |
| 23 | 17 | 15 | 15 | 14 | 15 | 186 | 121 | 176 | 34 | 14 | 18 | 14 |
| 24 | 17 | 18 | 15 | 13 | 16 | 173 | 129 | 166 | 32 | 20 | 17 | 17 |
| 25 | 17 | 16 | 15 | 13 | 17 | 175 | 143 | 156 | 29 | 40 | 18 | 15 |
| 26 | 16 | 15 | 18 | 13 | 18 | 188 | 166 | 143 | 28 | 23 | 16 | 16 |
| 27 | 16 | 13 | 20 | 13 | 19 | 190 | 189 | 134 | 27 | 18 | 15 | 12 |
| 28 | 16 | 13 | 20 | 13 | 20 | 190 | 182 | 125 | 29 | 16 | 14 | 11 |
| 29 | 30 | 14 | 17 | 14 | --- | 207 | 172 | 125 | 28 | 15 | 14 | 11 |
| 30 | 26 | 18 | 16 | 14 | --- | 244 | 158 | 125 | 24 | 14 | 14 | 11 |
| 31 | 20 | --- | 16 | 15 | --- | 326 | --- | 125 | --- | 15 | 14 | --- |
| TOTAL | 671 | 517 | 551 | 473 | 456 | 2898 | 5496 | 4473 | 1909 | 569 | 558 | 386 |
| MEAN | 21.6 | 17.2 | 17.8 | 15.3 | 16.4 | 93.5 | 183 | 144 | 63.6 | 18.4 | 18.0 | 12.9 |
| MAX | 59 | 23 | 22 | 26 | 20 | 326 | 340 | 220 | 120 | 40 | 25 | 17 |
| MIN | 12 | 13 | 15 | 11 | 15 | 22 | 121 | 103 | 24 | 14 | 14 | 11 |
| AC-FT | 1330 | 1030 | 1090 | 938 | 906 | 5750 | 10900 | 8870 | 3790 | 1130 | 1110 | 766 |

CAL YR 1977 TOTAL 8531.2 MEAN 23.4 MAX 144 MIN 8.9 AC-FT 16920
WTR YR 1978 TOTAL 18959.0 MEAN 51.9 MAX 340 MIN 11 AC-FT 37610

NOTE.--No gage-height record Feb. 2 to Mar. 6.

## 09492400 EAST FORK WHITE RIVER NEAR FORT APACHE, AZ

LOCATION.--Lat 33°49'20", long 109°48'50", in SE¼ sec.16, T.5 N., R.24 E. (unsurveyed), Apache County, Hydrologic Unit 15060102, in Fort Apache Indian Reservation, on left bank 600 ft (180 m) downstream from highway bridge, 0.1 mi (0.2 km) upstream from Rock Creek and 10 mi (16 km) east of Fort Apache.

DRAINAGE AREA.--38.8 $mi^2$ (100.5 $km^2$).

PERIOD OF RECORD.--August 1957 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 6,050 ft (1,844 m), by barometer. Prior to Dec. 29, 1960, at site 600 ft (180 m) upstream at datum 12.78 ft (3.895 m) higher. Dec. 29, 1960, to Sept. 28, 1962, at site 600 ft (180 m) upstream at datum 12.92 ft (3.938 m) higher.

REMARKS.--Records good except those for winter periods, which are poor.

AVERAGE DISCHARGE.--21 years, 31.9 $ft^3/s$ (0.903 $m^3/s$), 23,110 acre-ft/yr (28.5 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 663 $ft^3/s$ (18.8 $m^3/s$) Aug. 17, 1961, gage height, 4.82 ft (1.469 m), present site and datum, from floodmark, from rating curve extended above 170 $ft^3/s$ (4.8 $m^3/s$) on basis of slope-area measurement of peak flow; minimum daily, 4.0 $ft^3/s$ (0.11 $m^3/s$) Nov. 29, 1975.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*) and peak discharges above base of 100 $ft^3/s$ (2.83 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) | Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mar. 1 | 1400 | *272 | 7.70 | 2.76 | 0.841 | Apr. 27 | 0500 | 202 | 5.72 | 2.41 | 0.735 |
| Mar. 23 | 0315 | 160 | 4.53 | 2.18 | 0.664 | May 6 | 0700 | 127 | 3.60 | 2.03 | 0.619 |
| Apr. 1 | 0800 | 212 | 6.00 | 2.46 | 0.750 | May 15 | 0015 | 226 | 6.40 | 2.53 | 0.771 |
| Apr. 8 | 0015 | 168 | 4.76 | 2.24 | 0.683 | May 23 | 1945 | 163 | 4.62 | 2.24 | 0.683 |
| Apr. 16 | 0100 | 165 | 4.67 | 2.22 | 0.677 | | | | | | |

Minimum daily, 5.2 $ft^3/s$ (0.15 $m^3/s$) Dec. 20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 9.4 | 11 | 6.9 | 9.4 | 33 | 217 | 192 | 142 | 93 | 16 | 32 | 8.7 |
| 2 | 9.3 | 10 | 10 | 8.1 | 28 | 204 | 165 | 118 | 92 | 14 | 39 | 10 |
| 3 | 9.1 | 9.7 | 8.9 | 8.7 | 23 | 140 | 146 | 104 | 87 | 14 | 25 | 10 |
| 4 | 10 | 9.3 | 7.9 | 8.8 | 21 | 88 | 140 | 98 | 82 | 13 | 24 | 8.1 |
| 5 | 9.7 | 9.1 | 7.6 | 8.3 | 21 | 79 | 135 | 108 | 78 | 12 | 20 | 7.5 |
| 6 | 33 | 14 | 7.1 | 8.2 | 22 | 71 | 142 | 114 | 73 | 12 | 17 | 7.1 |
| 7 | 60 | 12 | 7.2 | 8.3 | 23 | 62 | 152 | 102 | 66 | 11 | 15 | 6.7 |
| 8 | 40 | 12 | 8.7 | 7.6 | 24 | 60 | 156 | 94 | 61 | 13 | 17 | 6.2 |
| 9 | 29 | 10 | 8.3 | 9.5 | 22 | 64 | 127 | 90 | 59 | 14 | 17 | 6.1 |
| 10 | 25 | 11 | 7.4 | 8.6 | 20 | 64 | 106 | 99 | 59 | 14 | 21 | 5.8 |
| 11 | 22 | 11 | 7.4 | 8.8 | 21 | 58 | 97 | 112 | 58 | 12 | 20 | 5.5 |
| 12 | 20 | 10 | 6.6 | 7.8 | 19 | 55 | 104 | 132 | 55 | 12 | 22 | 7.0 |
| 13 | 18 | 9.8 | 6.9 | 7.9 | 19 | 50 | 120 | 163 | 52 | 12 | 17 | 8.7 |
| 14 | 17 | 10 | 8.7 | 9.2 | 17 | 49 | 131 | 193 | 49 | 14 | 15 | 8.4 |
| 15 | 16 | 9.8 | 8.2 | 9.7 | 16 | 46 | 144 | 212 | 46 | 12 | 13 | 8.3 |
| 16 | 15 | 9.5 | 7.4 | 9.4 | 15 | 47 | 154 | 200 | 43 | 11 | 12 | 11 |
| 17 | 14 | 9.1 | 6.4 | 9.8 | 15 | 54 | 147 | 183 | 40 | 10 | 12 | 11 |
| 18 | 14 | 9.1 | 7.7 | 9.7 | 19 | 69 | 135 | 162 | 37 | 10 | 11 | 9.0 |
| 19 | 13 | 9.1 | 7.2 | 10 | 21 | 85 | 130 | 145 | 34 | 12 | 18 | 8.6 |
| 20 | 13 | 9.0 | 5.2 | 10 | 22 | 96 | 134 | 140 | 32 | 12 | 28 | 8.3 |
| 21 | 13 | 8.6 | 11 | 9.0 | 22 | 110 | 136 | 141 | 29 | 11 | 16 | 8.1 |
| 22 | 12 | 8.4 | 9.2 | 9.0 | 24 | 133 | 132 | 149 | 27 | 9.7 | 15 | 8.0 |
| 23 | 12 | 8.6 | 7.6 | 9.0 | 28 | 141 | 132 | 152 | 25 | 10 | 13 | 8.3 |
| 24 | 11 | 7.9 | 7.4 | 9.0 | 29 | 122 | 139 | 147 | 23 | 11 | 12 | 8.7 |
| 25 | 11 | 9.0 | 6.9 | 8.0 | 31 | 122 | 155 | 130 | 22 | 26 | 14 | 11 |
| 26 | 10 | 8.1 | 6.9 | 9.0 | 31 | 134 | 172 | 111 | 20 | 15 | 11 | 11 |
| 27 | 9.9 | 8.4 | 13 | 10 | 29 | 149 | 192 | 101 | 20 | 18 | 9.8 | 8.9 |
| 28 | 9.8 | 8.2 | 13 | 10 | 106 | 147 | 186 | 95 | 22 | 13 | 8.8 | 8.5 |
| 29 | 17 | 6.8 | 12 | 10 | --- | 148 | 175 | 92 | 22 | 11 | 8.3 | 8.2 |
| 30 | 17 | 8.5 | 11 | 15 | --- | 160 | 161 | 92 | 17 | 11 | 8.4 | 8.0 |
| 31 | 12 | --- | 10 | 30 | --- | 173 | --- | 94 | --- | 12 | 10 | --- |
| TOTAL | 531.2 | 287.0 | 259.7 | 305.8 | 721 | 3197 | 4337 | 4015 | 1423 | 397.7 | 521.3 | 250.7 |
| MEAN | 17.1 | 9.57 | 8.38 | 9.86 | 25.8 | 103 | 145 | 130 | 47.4 | 12.8 | 16.8 | 8.36 |
| MAX | 60 | 14 | 13 | 30 | 106 | 217 | 192 | 212 | 93 | 26 | 39 | 11 |
| MIN | 9.1 | 6.8 | 5.2 | 7.6 | 15 | 46 | 97 | 90 | 17 | 9.7 | 8.3 | 5.5 |
| AC-FT | 1050 | 569 | 515 | 607 | 1430 | 6340 | 8600 | 7960 | 2820 | 789 | 1030 | 497 |

CAL YR 1977 TOTAL 6489.4 MEAN 17.8 MAX 74 MIN 5.2 AC-FT 12870
WTR YR 1978 TOTAL 16246.4 MEAN 44.5 MAX 217 MIN 5.2 AC-FT 32220

## 09494000 WHITE RIVER NEAR FORT APACHE, AZ

LOCATION.--Lat 33°44'11", long 110°09'58", in SE¼ sec.32, T.4½ N., R.21 E. (unsurveyed), Gila County, Hydrologic Unit 15060102, in Fort Apache Indian Reservation, on right bank 2,200 ft (670 m) downstream from highway bridge, 4.5 mi (7.2 km) upstream from confluence with Black River, and 11 mi (18 km) west of Fort Apache.

DRAINAGE AREA.--632 $mi^2$ (1,637 $km^2$).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1917 to September 1918 (published as "at Wanslee's Ranch"), October 1957 to current year. Monthly discharge only for some periods, published in WSP 1313.

REVISED RECORDS.--WRD Ariz. 1971: 1967(M).

GAGE.--Water-stage recorder. Datum of gage is 4,365.99 ft (1,330.754 m) National Geodetic Vertical Datum of 1929. Oct. 12, 1917, to Aug. 31, 1918, nonrecording gage at site 2,100 ft (640 m) upstream at different datum.

REMARKS.--Records good. Small diversions above station for irrigation of about 1,460 acres (5.91 $km^2$). Negligible storage above station in several small recreational lakes.

AVERAGE DISCHARGE.--22 years, 174 $ft^3/s$ (4.928 $m^3/s$), 126,100 acre-ft/yr (155 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,670 $ft^3/s$ (246 $m^3/s$) Aug. 12, 1971, gage height, 13.8 ft (4.21 m), from rating curve extended above 3,800 $ft^3/s$ (110 $m^3/s$) on basis of slope-area measurements at gage heights 9.2 and 13.8 ft (2.80 and 4.21 m); no flow July 18-21, 1963.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*) and peak discharges above base of 1,000 $ft^3/s$ (28 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) | Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mar. 1 | 1830 | *6,590 | 187 | 11.05 | 3.368 | Aug. 1 | 0130 | 3,460 | 98.0 | 7.96 | 2.426 |
| Mar. 23 | 0900 | 2,370 | 67.1 | 7.07 | 2.155 | Aug. 12 | 0215 | 1,610 | 45.6 | 6.13 | 1.868 |

Minimum daily, 24 $ft^3/s$ (0.68 $m^3/s$) Dec. 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 38 | 58 | 37 | 42 | 344 | 3470 | 1610 | 618 | 300 | 61 | 376 | 40 |
| 2 | 38 | 53 | 33 | 39 | 230 | 4640 | 1630 | 568 | 290 | 59 | 170 | 35 |
| 3 | 37 | 52 | 48 | 36 | 176 | 2820 | 1370 | 525 | 280 | 47 | 100 | 35 |
| 4 | 36 | 50 | 43 | 38 | 147 | 1250 | 1260 | 469 | 260 | 55 | 110 | 45 |
| 5 | 34 | 47 | 40 | 40 | 133 | 928 | 1150 | 461 | 240 | 54 | 87 | 50 |
| 6 | 80 | 52 | 38 | 39 | 136 | 793 | 1170 | 522 | 230 | 53 | 84 | 45 |
| 7 | 380 | 76 | 33 | 37 | 164 | 630 | 1150 | 514 | 213 | 52 | 76 | 40 |
| 8 | 200 | 70 | 31 | 36 | 170 | 552 | 1180 | 479 | 189 | 51 | 73 | 35 |
| 9 | 150 | 67 | 34 | 30 | 161 | 530 | 975 | 452 | 180 | 51 | 73 | 30 |
| 10 | 120 | 55 | 33 | 34 | 143 | 526 | 784 | 427 | 173 | 50 | 72 | 30 |
| 11 | 90 | 58 | 34 | 42 | 231 | 461 | 885 | 436 | 170 | 50 | 69 | 30 |
| 12 | 66 | 56 | 35 | 39 | 159 | 440 | 667 | 484 | 167 | 46 | 225 | 30 |
| 13 | 65 | 55 | 32 | 34 | 141 | 437 | 716 | 520 | 159 | 40 | 78 | 28 |
| 14 | 61 | 52 | 30 | 32 | 137 | 405 | 641 | 611 | 148 | 37 | 64 | 29 |
| 15 | 57 | 52 | 32 | 39 | 131 | 358 | 943 | 723 | 138 | 41 | 59 | 28 |
| 16 | 54 | 50 | 34 | 49 | 127 | 339 | 932 | 721 | 127 | 42 | 54 | 38 |
| 17 | 51 | 49 | 32 | 39 | 108 | 344 | 873 | 682 | 118 | 35 | 51 | 38 |
| 18 | 49 | 47 | 30 | 38 | 87 | 422 | 762 | 616 | 108 | 32 | 46 | 38 |
| 19 | 49 | 48 | 34 | 45 | 88 | 541 | 698 | 563 | 103 | 37 | 43 | 31 |
| 20 | 50 | 46 | 32 | 40 | 101 | 706 | 681 | 510 | 97 | 38 | 39 | 27 |
| 21 | 50 | 45 | 24 | 35 | 125 | 836 | 675 | 486 | 89 | 38 | 67 | 27 |
| 22 | 50 | 44 | 25 | 35 | 132 | 1270 | 636 | 487 | 84 | 37 | 58 | 29 |
| 23 | 49 | 44 | 32 | 35 | 166 | 1820 | 608 | 491 | 76 | 34 | 55 | 30 |
| 24 | 49 | 44 | 35 | 45 | 184 | 1360 | 605 | 460 | 70 | 33 | 51 | 35 |
| 25 | 48 | 42 | 33 | 40 | 194 | 1180 | 643 | 439 | 67 | 42 | 51 | 43 |
| 26 | 48 | 45 | 31 | 43 | 204 | 1170 | 693 | 400 | 64 | 37 | 54 | 39 |
| 27 | 46 | 43 | 33 | 45 | 197 | 1240 | 786 | 380 | 63 | 33 | 52 | 30 |
| 28 | 47 | 43 | 43 | 50 | 222 | 1210 | 787 | 360 | 63 | 47 | 50 | 41 |
| 29 | 60 | 42 | 51 | 50 | --- | 1160 | 748 | 330 | 69 | 38 | 45 | 38 |
| 30 | 86 | 38 | 48 | 37 | --- | 1230 | 681 | 320 | 65 | 33 | 40 | 37 |
| 31 | 72 | --- | 48 | 148 | --- | 1370 | --- | 300 | --- | 42 | 40 | --- |
| TOTAL | 2308 | 1523 | 1096 | 1391 | 4538 | 34418 | 27137 | 15334 | 4400 | 1415 | 2532 | 1091 |
| MEAN | 74.4 | 50.8 | 35.4 | 44.9 | 162 | 1110 | 905 | 495 | 147 | 45.6 | 81.7 | 36.4 |
| MAX | 380 | 76 | 51 | 148 | 344 | 4640 | 1810 | 723 | 300 | 87 | 376 | 59 |
| MIN | 34 | 38 | 24 | 30 | 87 | 339 | 805 | 300 | 63 | 32 | 40 | 27 |
| AC-FT | 4570 | 3020 | 2170 | 2760 | 9000 | 68270 | 53830 | 30410 | 8730 | 2810 | 5020 | 2160 |

CAL YR 1977 TOTAL 29635 MEAN 81.2 MAX 484 MIN 19 AC-FT 58780
WTR YR 1978 TOTAL 97181 MEAN 266 MAX 4640 MIN 24 AC-FT 192800

09494000 WHITE RIVER NEAR FORT APACHE, AZ--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--January 1976 to current.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | TUR-BID-ITY (JTU) | TUR-BID-ITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 12... | 1600 | 70 | 300 | 8.2 | 17.0 | 8 | -- | 8.4 |
| NOV | | | | | | | | |
| 07... | 1400 | 74 | 335 | 9.5 | 11.0 | 7 | -- | 10.1 |
| DEC | | | | | | | | |
| 07... | 1430 | 30 | 500 | 9.3 | 5.0 | 1 | -- | 11.3 |
| JAN | | | | | | | | |
| 10... | 1630 | 51 | 450 | 8.3 | 5.5 | 1 | -- | 11.0 |
| FEB | | | | | | | | |
| 14... | 1500 | 320 | 260 | 8.9 | 4.0 | 9 | -- | 11.4 |
| APR | | | | | | | | |
| 18... | 1700 | 950 | 100 | 7.8 | 11.0 | 6 | -- | 9.2 |
| MAY | | | | | | | | |
| 09... | 1325 | 500 | 150 | 7.9 | 13.0 | -- | 4.6 | 9.0 |
| JUN | | | | | | | | |
| 07... | 0930 | 235 | 175 | 8.3 | 14.0 | 2 | -- | 8.7 |
| JUL | | | | | | | | |
| 13... | 1230 | 40 | 350 | 8.5 | 26.0 | 3 | -- | 7.4 |
| AUG | | | | | | | | |
| 16... | 1230 | 70 | 400 | 8.4 | 22.0 | -- | 17 | 7.6 |
| SEP | | | | | | | | |
| 12... | 1600 | 42 | 400 | 8.4 | 24.0 | 4 | -- | 7.6 |

| DATE | COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | BICAR-BONATE (MG/L AS HCO3) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 12... | 42 | 150 | 34 | 44 | 9.4 | 7.0 | .3 | 2.2 | 140 |
| NOV | | | | | | | | | |
| 07... | 49 | 170 | 39 | 50 | 11 | 8.9 | .3 | 2.5 | 160 |
| DEC | | | | | | | | | |
| 07... | 0 | 200 | 64 | 60 | 13 | 11 | .3 | 2.3 | 170 |
| JAN | | | | | | | | | |
| 10... | 7 | 230 | 76 | 68 | 15 | 10 | .3 | 2.4 | 190 |
| FEB | | | | | | | | | |
| 14... | 800 | 130 | 31 | 38 | 8.5 | 6.2 | .2 | 1.5 | 120 |
| APR | | | | | | | | | |
| 18... | 2 | 57 | 12 | 17 | 3.5 | 2.7 | .2 | .9 | 55 |
| MAY | | | | | | | | | |
| 09... | 7 | 62 | 7 | 18 | 4.2 | 3.6 | .2 | 1.0 | 67 |
| JUN | | | | | | | | | |
| 07... | 23 | 79 | 14 | 24 | 4.7 | 4.0 | .2 | 1.5 | 80 |
| JUL | | | | | | | | | |
| 13... | 32 | 170 | 51 | 50 | 12 | 8.1 | .3 | 2.3 | 150 |
| AUG | | | | | | | | | |
| 16... | 42 | 190 | 42 | 55 | 12 | 8.0 | .3 | 2.4 | 170 |
| SEP | | | | | | | | | |
| 12... | K9 | 190 | 70 | 56 | 13 | 9.8 | .3 | 2.5 | 150 |

K Based on non-ideal colony count.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | CARBONATE (MG/L AS CO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | SOLIDS, DISSOLVED (TONS PER AC-FT) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 12... | 0 | 43 | 2.6 | .2 | 21 | 185 | 198 | .25 |
| NOV | | | | | | | | |
| 07... | 0 | 54 | 3.3 | .1 | 20 | 228 | 229 | .31 |
| DEC | | | | | | | | |
| 07... | 0 | 66 | 8.5 | .2 | 20 | 267 | 265 | .36 |
| JAN | | | | | | | | |
| 10... | 0 | 78 | 8.2 | .1 | 18 | 296 | 294 | .40 |
| FEB | | | | | | | | |
| 14... | 0 | 35 | 2.4 | .1 | 19 | 162 | 170 | .22 |
| APR | | | | | | | | |
| 18... | 0 | 10 | 1.3 | .1 | 15 | 77 | 78 | .10 |
| MAY | | | | | | | | |
| 09... | 0 | 15 | 1.6 | .1 | 16 | 91 | 93 | .12 |
| JUN | | | | | | | | |
| 07... | 0 | 20 | 1.5 | .1 | 17 | 113 | 112 | .15 |
| JUL | | | | | | | | |
| 13... | 0 | 57 | 4.2 | .1 | 17 | 226 | 225 | .31 |
| AUG | | | | | | | | |
| 16... | 3 | 58 | 3.3 | .1 | 20 | 242 | 246 | .33 |
| SEP | | | | | | | | |
| 12... | 0 | 73 | 6.1 | .2 | 20 | 249 | 255 | .34 |

| DATE | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | NITROGEN, TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P) |
|---|---|---|---|---|---|---|
| OCT | | | | | | |
| 12... | .03 | -- | .32 | .35 | .05 | -- |
| NOV | | | | | | |
| 07... | .01 | -- | .66 | .67 | .04 | -- |
| DEC | | | | | | |
| 07... | .02 | .01 | .46 | .48 | .02 | .01 |
| JAN | | | | | | |
| 10... | .02 | .03 | .11 | .13 | .09 | .01 |
| FEB | | | | | | |
| 14... | .03 | .01 | .11 | .14 | .08 | .02 |
| APR | | | | | | |
| 18... | .05 | .03 | .27 | .32 | .06 | .02 |
| MAY | | | | | | |
| 09... | .00 | .01 | .15 | .15 | .06 | .02 |
| JUN | | | | | | |
| 07... | .00 | .02 | .27 | .27 | .03 | .01 |
| JUL | | | | | | |
| 13... | .00 | .02 | .26 | .26 | .02 | .01 |
| AUG | | | | | | |
| 16... | .01 | .00 | .70 | .71 | .08 | .02 |
| SEP | | | | | | |
| 12... | .02 | .05 | .18 | .20 | .02 | .00 |

09494000 WHITE RIVER NEAR FORT APACHE, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) | BORON, TOTAL RECOV-ERABLE (UG/L AS B) | BORON, DIS-SOLVED (UG/L AS B) | CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) | IRON, TOTAL RECOV-ERABLE (UG/L AS FE) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 12... | 1 | 200 | 80 | 20 | <10 | 0 | 10 | 330 |
| NOV | | | | | | | | |
| 07... | 1 | 300 | 70 | 20 | 5 | 16 | 14 | 360 |
| DEC | | | | | | | | |
| 07... | 1 | 0 | 90 | 20 | 1 | 0 | 5 | 60 |
| JAN | | | | | | | | |
| 10... | 1 | 100 | 50 | 30 | 0 | 10 | 5 | 120 |
| FEB | | | | | | | | |
| 14... | 1 | 0 | 70 | 20 | 3 | 10 | 7 | 600 |
| APR | | | | | | | | |
| 18... | 2 | 200 | 90 | 10 | 1 | 0 | 4 | 960 |
| MAY | | | | | | | | |
| 09... | 1 | 100 | 510 | 20 | 0 | 0 | 2 | 630 |
| JUN | | | | | | | | |
| 07... | 1 | 300 | 80 | 10 | 0 | 5 | 5 | 260 |
| JUL | | | | | | | | |
| 13... | 1 | 200 | 70 | 20 | 0 | 10 | 6 | 160 |
| AUG | | | | | | | | |
| 16... | 2 | 200 | 70 | 30 | 1 | 0 | 8 | 400 |
| SEP | | | | | | | | |
| 12... | 3 | 0 | 80 | 40 | 8 | 10 | 8 | 170 |

| DATE | IRON, DIS-SOLVED (UG/L AS FE) | LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) | MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) | MANGA-NESE, DIS-SOLVED (UG/L AS MN) | MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) | SELE-NIUM, TOTAL (UG/L AS SE) | SILVER, TOTAL RECOV-ERABLE (UG/L AS AG) | ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 12... | 30 | <100 | 20 | 4 | .0 | 0 | <10 | 30 |
| NOV | | | | | | | | |
| 07... | 50 | 45 | 20 | 10 | .0 | 0 | 0 | 40 |
| DEC | | | | | | | | |
| 07... | 10 | 3 | 20 | 10 | .0 | 0 | 0 | 60 |
| JAN | | | | | | | | |
| 10... | 30 | 2 | 0 | 10 | .0 | 0 | 0 | 30 |
| FEB | | | | | | | | |
| 14... | 50 | 40 | 20 | 0 | .0 | 0 | 5 | 20 |
| APR | | | | | | | | |
| 18... | 30 | 5 | 30 | 0 | .0 | 0 | 0 | 10 |
| MAY | | | | | | | | |
| 09... | 30 | 5 | 20 | 0 | .0 | 0 | 0 | 30 |
| JUN | | | | | | | | |
| 07... | 0 | 6 | 20 | 5 | .0 | 0 | 0 | 10 |
| JUL | | | | | | | | |
| 13... | 10 | 3 | 20 | 0 | .0 | 0 | 0 | 10 |
| AUG | | | | | | | | |
| 16... | <10 | 20 | 30 | 4 | .0 | 0 | 0 | 40 |
| SEP | | | | | | | | |
| 12... | 10 | 7 | 20 | 0 | .0 | 0 | 0 | 10 |

< Actual value is known to be less than value shown.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | CARBON, ORGANIC TOTAL (MG/L AS C) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS (UG/L) | PHYTO-PLANK-TON, TOTAL (CELLS PER ML) | PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M | PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M | CHLOR-A PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) | CHLOR-B PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 12... | 1.8 | .00 | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | | | |
| 07... | 1.4 | .00 | 4 | -- | -- | -- | -- | -- |
| DEC | | | | | | | | |
| 07... | .9 | .00 | 5 | -- | -- | -- | -- | -- |
| JAN | | | | | | | | |
| 10... | .7 | .00 | 2 | -- | -- | -- | -- | -- |
| FEB | | | | | | | | |
| 14... | 2.7 | .00 | 2 | -- | -- | -- | -- | -- |
| APR | | | | | | | | |
| 18... | 3.0 | .00 | 5 | -- | -- | -- | -- | -- |
| MAY | | | | | | | | |
| 09... | 3.1 | .00 | 0 | -- | -- | -- | -- | -- |
| JUN | | | | | | | | |
| 07... | 2.1 | .00 | 1 | 500 | -- | -- | -- | -- |
| JUL | | | | | | | | |
| 13... | 2.0 | .00 | 1 | -- | 6.85 | 6.85 | .190 | .000 |
| AUG | | | | | | | | |
| 16... | -- | .00 | 0 | -- | -- | -- | -- | -- |
| SEP | | | | | | | | |
| 12... | 2.0 | .00 | 3 | -- | -- | -- | -- | -- |

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

PHYTOPLANKTON

| | |
|---|---|
| DATE | JUN 7,78 |
| TIME | 0930 |
| TOTAL CELLS/ML | 500 |
| DIVERSITY: DIVISION | 1.0 |
| .CLASS | 1.0 |
| ..ORDER | 1.0 |
| ...FAMILY | 2.4 |
| ....GENUS | 2.5 |

| ORGANISM | CELLS /ML | PER-CENT |
|---|---|---|
| CHRYSOPHYTA | | |
| .BACILLARIOPHYCEAE | | |
| ..PENNALES | | |
| ...ACHNANTHACEAE | | |
| ....ACHNANTHES | 14 | 3 |
| ....RHOICOSPHENIA | 14 | 3 |
| ...CYMBELLACEAE | | |
| ....CYMBELLA | 14 | 3 |
| ....EPITHEMIA | 14 | 3 |
| ...FRAGILARIACEAE | | |
| ....SYNEDRA | 86# | 17 |
| ...GOMPHONEMATACEAE | | |
| ....GOMPHONEMA | 72 | 14 |
| ...NAVICULACEAE | | |
| ....NAVICULA | 29 | 6 |
| ...NITZSCHIACEAE | | |
| ....NITZSCHIA | 43 | 9 |
| CYANOPHYTA (BLUE-GREEN ALGAE) | | |
| .CYANOPHYCEAE | | |
| ..HORMOGONALES | | |
| ...OSCILLATORIACEAE | | |
| ....OSCILLATORIA | 210# | 43 |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

## 09495000 FORESTDALE CREEK DIVERSION FROM SHOW LOW CREEK, NEAR SHOW LOW, AZ

LOCATION.--Lat 34°10'40", long 110°00'56", in SE¼NW¼ sec.16, T.9 N., R.22 E., Navajo County, Hydrologic Unit 15020005, in Sitgreaves National Forest, on right bank 170 ft (50 m) downstream from terminal structure of Show Low Creek diversion works, 4,350 ft (1,330 m) west of pumping plant on Show Low Lake, and 5 mi (8 km) south of Show Low.

PERIOD OF RECORD.--May 1953 to current year.

GAGE.--Water-stage recorder and V-notch sharp-crested weir. Datum of gage is 6,621.57 ft (2,018.255 m) National Geodetic Vertical Datum of 1929 (Bureau of Reclamation bench mark).

REMARKS.--Records good. Entire flow consists of water pumped from Show Low Lake, in Little Colorado River basin, into headwaters of Forestdale Creek in Gila River basin.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 28 $ft^3/s$ (0.79 $m^3/s$) June 2, 3, 5, 1973, Mar. 17-25, 27-30, Apr. 2-15, Apr. 18 to May 5, 1975; no flow for most of time.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .00 | .00 | .00 | .00 | .00 | 19 | 26 | 13 | 25 | 23 | .00 | .00 |
| 2 | .00 | .00 | .00 | .00 | .00 | 17 | 26 | 11 | 23 | 23 | .00 | .00 |
| 3 | .00 | .00 | .00 | .00 | .00 | 13 | 27 | 5.4 | 23 | 23 | .00 | .00 |
| 4 | .00 | .00 | .00 | .00 | .00 | .00 | 27 | 15 | 25 | 23 | .00 | .00 |
| 5 | .00 | .00 | .00 | .00 | .00 | .00 | 23 | 26 | 25 | 23 | .00 | .00 |
| 6 | .00 | .00 | .00 | .00 | .00 | 12 | 21 | 26 | 25 | 22 | .00 | .00 |
| 7 | .00 | .00 | .00 | .00 | 11 | 26 | 21 | 26 | 25 | 22 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | 18 | 26 | 18 | 26 | 25 | 22 | .00 | .00 |
| 9 | .00 | .00 | .00 | .00 | 18 | 26 | 15 | 26 | 25 | 22 | .00 | .00 |
| 10 | .00 | .00 | .00 | .00 | 18 | 26 | 15 | 26 | 24 | 22 | .00 | .00 |
| 11 | .00 | .00 | .00 | .00 | 15 | 26 | 15 | 26 | 24 | 21 | .00 | .00 |
| 12 | .00 | .00 | .00 | .00 | 18 | 26 | 15 | 26 | 24 | 21 | .00 | .00 |
| 13 | .00 | .00 | .00 | .00 | 18 | 26 | 15 | 26 | 24 | 21 | .00 | .00 |
| 14 | .00 | .00 | .00 | .00 | 18 | 26 | 15 | 26 | 24 | 18 | .00 | .00 |
| 15 | .00 | .00 | .00 | .00 | 18 | 26 | 15 | 26 | 24 | 18 | .00 | .00 |
| 16 | .00 | .00 | .00 | .00 | 18 | 26 | 15 | 26 | 24 | 21 | .00 | .00 |
| 17 | .00 | .00 | .00 | .00 | 18 | 26 | 15 | 26 | 24 | 20 | .00 | .00 |
| 18 | .00 | .00 | .00 | .00 | 18 | 26 | 15 | 26 | 24 | 21 | .00 | .00 |
| 19 | .00 | .00 | .00 | .00 | 18 | 26 | 15 | 26 | 24 | 20 | .00 | .00 |
| 20 | .00 | .00 | .00 | .00 | 18 | 26 | 15 | 15 | 24 | 19 | .00 | .00 |
| 21 | .00 | .00 | .00 | .00 | 18 | 26 | 15 | 14 | 24 | 19 | .00 | .00 |
| 22 | .00 | .00 | .00 | .00 | 18 | 26 | 14 | 25 | 24 | 16 | .00 | .00 |
| 23 | .00 | .00 | .00 | .00 | 18 | 26 | 13 | 25 | 24 | 15 | .00 | .00 |
| 24 | .00 | .00 | .00 | .00 | 17 | 26 | 13 | 25 | 24 | 5.0 | .00 | .00 |
| 25 | .00 | .00 | .00 | .00 | 17 | 26 | 13 | 25 | 23 | 2.2 | .00 | .00 |
| 26 | .00 | .00 | .00 | .00 | 17 | 26 | 13 | 25 | 23 | .00 | .00 | .00 |
| 27 | .00 | .00 | .00 | .00 | 17 | 26 | 13 | 25 | 23 | .00 | .00 | .00 |
| 28 | .00 | .00 | .00 | .00 | 18 | 26 | 13 | 25 | 23 | .00 | .00 | .00 |
| 29 | .00 | .00 | .00 | .00 | --- | 26 | 13 | 25 | 23 | .00 | .00 | .00 |
| 30 | .00 | .00 | .00 | .00 | --- | 26 | 13 | 25 | 23 | .00 | .00 | .00 |
| 31 | .00 | --- | .00 | .00 | --- | 26 | --- | 25 | --- | .00 | .00 | --- |
| TOTAL | .00 | .00 | .00 | .00 | 382.00 | 711.00 | 502 | 713.4 | 719 | 482.20 | .00 | .00 |
| MEAN | .000 | .000 | .000 | .000 | 13.6 | 22.9 | 16.7 | 23.0 | 24.0 | 15.6 | .000 | .000 |
| MAX | .00 | .00 | .00 | .00 | 18 | 26 | 27 | 26 | 25 | 23 | .00 | .00 |
| MIN | .00 | .00 | .00 | .00 | .00 | .00 | 13 | 5.4 | 23 | .00 | .00 | .00 |
| AC-FT | .00 | .00 | .00 | .00 | 758 | 1410 | 996 | 1420 | 1430 | 956 | .00 | .00 |

CAL YR 1977 TOTAL 449.00 MEAN 1.23 MAX 20 MIN .00 AC-FT 891
WTR YR 1978 TOTAL 3509.60 MEAN 9.62 MAX 27 MIN .00 AC-FT 6960

## 09496500 CARRIZO CREEK NEAR SHOW LOW, AZ

LOCATION.--Lat 33°59'09", long 110°16'52", in sec.24, T.7 N., R.19 E. (unsurveyed), Gila County, Hydrologic Unit 15060104, in Fort Apache Indian Reservation, on right bank 500 ft (152 m) upstream from bridge on U.S. Highway 60, 1 mi (2 km) downstream from Corduroy Creek, 23 mi (37 km) southwest of Show Low, and 24 mi (39 km) upstream from mouth. Prior to June 1976 at site on bridge pier 400 ft (122 m) downstream.

DRAINAGE AREA.--439 $mi^2$ (1,137 $km^2$).

PERIOD OF RECORD.--June 1951 to June 1961, June 1967 to June 1976, October 1975 to June 1976 (monthly discharges only), April 1977 to current year.

REVISED RECORDS.--WRD Ariz. 1968: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 4,749.52 ft or 447.654 m (revised) National Geodetic Vertical Datum of 1929. Prior to June 1976 at site on bridge pier 400 ft (122 m) downstream at same datum.

REMARKS.--Records good. Diversions for irrigation above station of less than 300 acres (1.21 $km^2$). Records include transbasin diversion from Show Low Creek. (See sta 09495000.)

AVERAGE DISCHARGE.--18 years (water years 1952-60, 1968-75, 1978), 45.0 $ft^3/s$ (1.274 $m^3/s$), 32,600 acre-ft/yr (40.2 $hm^3/yr$); median of yearly mean discharges, 27 $ft^3/s$ (0.76 $m^3/s$), 19,600 acre-ft/yr (24 $hm^3/yr$), unadjusted for transbasin diversion.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,500 $ft^3/s$ (581 $m^3/s$) Jan. 18, 1952, gage height, 12.08 ft (3.682 m), from rating curve extended above 2,000 $ft^3/s$ (57 $m^3/s$) on basis of slope-area measurement of peak flow; minimum daily, 0.2 $ft^3/s$ (0.006 $m^3/s$) July 12, 1951, Sept. 21, 1959, at site then in use.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge since at least 1951, about 23,000 $ft^3/s$ (650 $m^3/s$) Dec. 30, 1965, gage height, 13.0 ft (3.96 m), from floodmark at previous site, from rating curve extended above 2,000 $ft^3/s$ (57 $m^3/s$) on basis of slope-area measurement at gage height 12.08 ft (3.682 m).

EXTREMES FOR CURRENT PERIOD.--Maximum discharges (*) and peak discharges above base of 1,000 $ft^3/s$ (28 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) | Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| July 3, 1977 | 2100 | 1,710 | 48.4 | 4.96 | 1.512 | Mar. 1, 1978 | 1515 | *12,700 | 360 | 12.07 | 3.679 |
| Aug. 11, 1977 | Unknown | *5,060 | 143 | 7.80 | 2.377 | Aug. 12, 1978 | 0115 | 2,250 | 63.7 | 5.51 | 1.679 |

Minimum daily, 0.85 $ft^3/s$ (0.024 $m^3/s$) June 19-20, July 11, 1977.
Minimum daily, 1.3 $ft^3/s$ (0.037 $m^3/s$) Jan. 7, 1978.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | --- | 9.0 | 3.0 | 1.0 | 3.8 | 1.7 |
| 2 | | | | | | | --- | 9.0 | 3.2 | 1.0 | 19 | 4.7 |
| 3 | | | | | | | --- | 8.0 | 3.2 | 127 | 5.1 | 13 |
| 4 | | | | | | | --- | 7.0 | 3.6 | 36 | 3.4 | 3.8 |
| 5 | | | | | | | --- | 6.6 | 3.8 | 3.8 | 2.3 | 2.6 |
| 6 | | | | | | | --- | 6.6 | 4.0 | 2.8 | 2.2 | 5.9 |
| 7 | | | | | | | --- | 6.4 | 3.8 | 1.8 | 9.6 | 3.2 |
| 8 | | | | | | | 24 | 6.6 | 3.8 | 1.5 | 6.0 | 1.7 |
| 9 | | | | | | | 24 | 7.0 | 3.6 | 1.1 | 4.0 | 1.4 |
| 10 | | | | | | | 20 | 7.0 | 3.0 | .94 | 19 | 1.8 |
| 11 | | | | | | | 17 | 6.4 | 2.2 | .85 | 502 | 2.2 |
| 12 | | | | | | | 18 | 6.1 | 1.7 | 7.5 | 10 | 3.0 |
| 13 | | | | | | | 19 | 5.8 | 1.3 | 4.0 | 7.3 | 3.2 |
| 14 | | | | | | | 19 | 6.6 | 1.1 | 2.2 | 4.8 | 3.2 |
| 15 | | | | | | | 20 | 7.0 | .94 | 1.4 | 5.1 | 2.6 |
| 16 | | | | | | | 22 | 6.4 | .94 | 30 | 24 | 2.2 |
| 17 | | | | | | | 21 | 5.3 | 1.0 | 4.9 | 22 | 2.2 |
| 18 | | | | | | | 20 | 5.6 | .94 | 3.6 | 9.3 | 1.7 |
| 19 | | | | | | | 20 | 5.1 | .85 | 6.9 | 82 | 1.7 |
| 20 | | | | | | | 19 | 4.6 | .85 | 9.3 | 14 | 1.4 |
| 21 | | | | | | | 19 | 4.6 | 1.0 | 6.1 | 4.6 | 1.4 |
| 22 | | | | | | | 19 | 4.2 | 1.3 | 7.0 | 4.6 | 1.4 |
| 23 | | | | | | | 18 | 4.2 | 1.5 | 47 | 3.4 | 2.0 |
| 24 | | | | | | | 16 | 3.8 | 1.4 | 13 | 2.8 | 2.0 |
| 25 | | | | | | | 15 | 4.2 | 1.5 | 9.0 | 2.6 | 1.8 |
| 26 | | | | | | | 14 | 4.6 | 1.7 | 8.6 | 2.2 | 1.8 |
| 27 | | | | | | | 13 | 4.0 | 1.5 | 6.6 | 2.0 | 1.8 |
| 28 | | | | | | | 12 | 3.6 | 1.3 | 5.3 | 2.0 | 7.6 |
| 29 | | | | | | | 12 | 3.6 | 1.1 | 4.4 | 1.8 | 3.8 |
| 30 | | | | | | | 11 | 3.4 | 1.1 | 4.6 | 1.7 | 3.0 |
| 31 | | | | | | | --- | 3.2 | --- | 4.6 | 1.7 | --- |
| TOTAL | | | | | | | --- | 175.5 | 60.22 | 363.79 | 784.3 | 89.8 |
| MEAN | | | | | | | --- | 5.66 | 2.01 | 11.7 | 25.3 | 2.99 |
| MAX | | | | | | | --- | 9.0 | 4.0 | 127 | 502 | 13 |
| MIN | | | | | | | --- | 3.2 | .85 | .85 | 1.7 | 1.4 |
| AC-FT | | | | | | | --- | 348 | 119 | 722 | 1560 | 178 |

09496500 CARRIZO CREEK NEAR SHOW LOW, AZ--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2.6 | 4.4 | 4.5 | 4.8 | 220 | 5210 | 73 | 15 | 18 | 20 | 5.1 | 2.8 |
| 2 | 2.5 | 4.4 | 4.6 | 4.6 | 81 | 4060 | 95 | 17 | 18 | 20 | 17 | 3.4 |
| 3 | 2.5 | 4.4 | 4.7 | 4.0 | 46 | 3830 | 71 | 17 | 16 | 20 | 11 | 3.6 |
| 4 | 2.4 | 4.4 | 4.6 | 2.2 | 29 | 1410 | 57 | 12 | 17 | 19 | 6.2 | 3.0 |
| 5 | 2.5 | 4.4 | 4.4 | 3.6 | 23 | 1100 | 51 | 15 | 20 | 19 | 6.0 | 2.9 |
| 6 | 77 | 7.6 | 4.4 | 3.8 | 20 | 1040 | 49 | 27 | 20 | 19 | 5.7 | 2.8 |
| 7 | 13 | 6.6 | 4.4 | 1.3 | 20 | 668 | 43 | 25 | 21 | 19 | 18 | 2.4 |
| 8 | 7.2 | 6.9 | 4.4 | 5.3 | 42 | 402 | 39 | 24 | 23 | 20 | 19 | 2.3 |
| 9 | 5.0 | 5.6 | 4.8 | 6.0 | 42 | 294 | 38 | 22 | 23 | 20 | 18 | 2.3 |
| 10 | 4.2 | 5.3 | 4.8 | 6.0 | 39 | 250 | 45 | 21 | 22 | 20 | 12 | 2.3 |
| 11 | 3.9 | 5.1 | 4.8 | 6.0 | 71 | 229 | 38 | 20 | 22 | 24 | 35 | 2.0 |
| 12 | 3.6 | 5.1 | 4.8 | 7.0 | 66 | 279 | 33 | 20 | 22 | 21 | 578 | 1.7 |
| 13 | 3.5 | 4.8 | 4.8 | 7.0 | 56 | 325 | 32 | 19 | 22 | 20 | 14 | 1.7 |
| 14 | 3.4 | 4.8 | 4.6 | 8.0 | 56 | 284 | 31 | 19 | 22 | 20 | 8.3 | 1.8 |
| 15 | 3.3 | 4.8 | 4.6 | 9.0 | 59 | 226 | 28 | 19 | 21 | 17 | 6.5 | 1.8 |
| 16 | 3.3 | 4.8 | 4.6 | 10 | 59 | 157 | 27 | 19 | 21 | 18 | 5.6 | 4.2 |
| 17 | 3.2 | 4.9 | 4.8 | 11 | 50 | 126 | 27 | 18 | 21 | 25 | 5.1 | 3.7 |
| 18 | 3.4 | 4.9 | 4.4 | 11 | 38 | 118 | 25 | 19 | 21 | 21 | 4.9 | 3.1 |
| 19 | 3.8 | 4.8 | 4.4 | 11 | 40 | 120 | 25 | 19 | 21 | 20 | 4.9 | 2.5 |
| 20 | 3.6 | 4.9 | 2.8 | 11 | 40 | 132 | 25 | 19 | 21 | 18 | 8.3 | 2.8 |
| 21 | 3.6 | 4.6 | 1.4 | 10 | 46 | 119 | 24 | 15 | 21 | 20 | 31 | 2.6 |
| 22 | 4.0 | 4.6 | 2.6 | 9.1 | 64 | 169 | 17 | 12 | 21 | 18 | 7.8 | 2.6 |
| 23 | 4.0 | 4.7 | 4.4 | 9.3 | 104 | 355 | 16 | 19 | 24 | 15 | 6.3 | 80 |
| 24 | 4.0 | 4.6 | 4.4 | 9.0 | 154 | 195 | 15 | 19 | 20 | 14 | 5.3 | 32 |
| 25 | 4.0 | 4.7 | 4.2 | 9.5 | 171 | 120 | 15 | 19 | 20 | 9.3 | 4.7 | 9.7 |
| 26 | 3.8 | 4.7 | 4.4 | 6.9 | 170 | 91 | 14 | 19 | 20 | 11 | 3.7 | 5.1 |
| 27 | 3.8 | 4.7 | 4.8 | 6.7 | 154 | 78 | 13 | 19 | 20 | 7.3 | 3.1 | 3.4 |
| 28 | 4.0 | 4.8 | 5.1 | 6.9 | 1760 | 71 | 12 | 19 | 23 | 4.9 | 2.8 | 3.0 |
| 29 | 7.8 | 4.6 | 5.3 | 7.0 | --- | 66 | 12 | 19 | 21 | 4.0 | 2.8 | 2.6 |
| 30 | 5.2 | 4.7 | 5.1 | 7.9 | --- | 58 | 12 | 20 | 21 | 20 | 2.8 | 2.3 |
| 31 | 4.6 | --- | 5.1 | 40 | --- | 54 | --- | 18 | --- | 11 | 2.7 | --- |
| TOTAL | 202.7 | 149.6 | 137.0 | 254.9 | 3720 | 21636 | 1002 | 584 | 623 | 534.5 | 861.6 | 196.4 |
| MEAN | 6.54 | 4.99 | 4.42 | 8.22 | 133 | 698 | 33.4 | 18.8 | 20.8 | 17.2 | 27.8 | 6.55 |
| MAX | 77 | 7.6 | 5.3 | 40 | 1760 | 5210 | 95 | 27 | 24 | 25 | 578 | 80 |
| MIN | 2.4 | 4.4 | 1.4 | 1.3 | 20 | 54 | 12 | 12 | 16 | 4.0 | 2.7 | 1.7 |
| AC-FT | 402 | 297 | 272 | 506 | 7380 | 42910 | 1990 | 1160 | 1240 | 1060 | 1710 | 390 |

WTR YR 1978 TOTAL 29901.7 MEAN 81.9 MAX 5210 MIN 1.3 AC-FT 59310

NOTE.--No gage-height record Dec. 17 to Jan. 19.

## 09497500 SALT RIVER NEAR CHRYSOTILE, AZ

LOCATION.--Lat 33°47'53", long 110°29'57", in sec.25, T.5 N., R.17 E. (unsurveyed), Gila County, Hydrologic Unit 15060103, in San Carlos Indian Reservation, on left bank 1,200 ft (366 m) upstream from bridge on U.S. Highway 60, 5.7 mi (9.2 km) northeast of Chrysotile, 8 mi (13 km) upstream from Cibecue Creek, and 33 mi (53 km) downstream from confluence of Black and White Rivers.

DRAINAGE AREA.--2,849 $mi^2$ (7,379 $km^2$).

PERIOD OF RECORD.--September 1924 to current year (monthly discharge only July to December 1954).

REVISED RECORDS.--WSP 859: 1926-27, 1929-30, 1934, 1936. WSP 899: 1927, 1932, 1937, 1938(M). WSP 1313: 1925-26(M), 1929-30(M), 1935-36(M), 1944(M). WSP 1343: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 3,354.57 ft (1,022.473 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Several diversions for irrigation above station of about 3,100 acres (12.5 $km^2$), one diversion into the basin (see record of Forestdale Creek diversion from Show Low Creek, near Show Low), and one diversion out of the basin (see record of Willow Creek diversion from Black River, near Morenci).

AVERAGE DISCHARGE.--54 years, 595 $ft^3/s$ (16.85 $m^3/s$), 431,100 acre-ft/yr (532 $hm^3/yr$); median of yearly mean discharges, 450 $ft^3/s$ (12.7 $m^3/s$), 326,000 acre-ft/yr (400 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 52,900 $ft^3/s$ (1,500 $m^3/s$) Feb. 7, 1937, gage height, 15.18 ft (4.627 m); minimum, 49 $ft^3/s$ (1.39 $m^3/s$) July 6, 7, 1955.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood peak of 74,000 $ft^3/s$ (2,100 $m^3/s$) occurred prior to 1924 and is believed to be the peak of the flood of Jan. 19, 1916, gage height, 18 ft (5.5 m), from floodmarks, from rating curve extended above 52,000 $ft^3/s$ (1,500 $m^3/s$).

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*) and peak discharges above base of 3,500 $ft^3/s$ (99 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) | Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Feb. 1 | 0630 | 4,640 | 131 | 5.57 | 1.698 | Mar. 23 | 1515 | 5,650 | 160 | 6.07 | 1.850 |
| Mar. 2 | 0715 | *45,300 | 1,280 | 14.93 | 4.551 | Apr. 1 | 2230 | 5,460 | 155 | 5.98 | 1.823 |
| Mar. 13 | 0415 | 4,370 | 124 | 5.43 | 1.655 | | | | | | |

Minimum daily, 107 $ft^3/s$ (3.03 $m^3/s$) Sept. 12-14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 135 | 182 | 139 | 184 | 3770 | 27800 | 4630 | 1300 | 539 | 199 | 601 | 135 |
| 2 | 128 | 173 | 135 | 177 | 2120 | 37600 | 4950 | 1300 | 536 | 197 | 479 | 178 |
| 3 | 124 | 173 | 130 | 169 | 1140 | 23600 | 4090 | 1240 | 528 | 185 | 447 | 143 |
| 4 | 120 | 160 | 147 | 162 | 808 | 9450 | 3760 | 1120 | 521 | 174 | 301 | 140 |
| 5 | 116 | 151 | 140 | 159 | 636 | 5270 | 3480 | 1030 | 494 | 185 | 332 | 191 |
| 6 | 248 | 155 | 137 | 159 | 554 | 5600 | 3210 | 1010 | 436 | 179 | 297 | 150 |
| 7 | 520 | 179 | 139 | 154 | 548 | 4380 | 3200 | 1080 | 425 | 175 | 274 | 139 |
| 8 | 399 | 192 | 135 | 151 | 720 | 3060 | 3210 | 1070 | 410 | 173 | 229 | 130 |
| 9 | 370 | 183 | 132 | 148 | 810 | 2620 | 3060 | 1010 | 388 | 171 | 250 | 124 |
| 10 | 341 | 182 | 135 | 144 | 743 | 2450 | 2600 | 953 | 389 | 174 | 425 | 117 |
| 11 | 278 | 182 | 132 | 156 | 2150 | 2420 | 2300 | 894 | 375 | 191 | 237 | 111 |
| 12 | 240 | 178 | 136 | 161 | 2040 | 2200 | 2200 | 882 | 366 | 213 | 704 | 107 |
| 13 | 215 | 173 | 141 | 153 | 1080 | 3580 | 2500 | 896 | 359 | 176 | 304 | 107 |
| 14 | 195 | 170 | 139 | 151 | 925 | 2870 | 2700 | 949 | 345 | 176 | 253 | 107 |
| 15 | 185 | 167 | 136 | 157 | 992 | 2120 | 2800 | 1040 | 330 | 172 | 217 | 110 |
| 16 | 175 | 164 | 137 | 175 | 962 | 1740 | 2700 | 1110 | 317 | 166 | 193 | 120 |
| 17 | 170 | 161 | 138 | 209 | 844 | 1570 | 2500 | 1100 | 308 | 182 | 174 | 159 |
| 18 | 162 | 158 | 137 | 288 | 626 | 1600 | 2200 | 1060 | 297 | 176 | 165 | 132 |
| 19 | 160 | 155 | 133 | 315 | 511 | 1890 | 2000 | 986 | 280 | 170 | 153 | 129 |
| 20 | 157 | 153 | 140 | 273 | 469 | 2380 | 1900 | 916 | 275 | 157 | 148 | 122 |
| 21 | 152 | 150 | 137 | 250 | 481 | 2850 | 1800 | 854 | 250 | 154 | 188 | 115 |
| 22 | 149 | 150 | 119 | 229 | 571 | 3270 | 1700 | 821 | 243 | 147 | 206 | 115 |
| 23 | 148 | 149 | 123 | 227 | 701 | 4890 | 1600 | 805 | 231 | 146 | 193 | 112 |
| 24 | 147 | 148 | 133 | 224 | 830 | 4870 | 1600 | 795 | 219 | 143 | 184 | 183 |
| 25 | 145 | 147 | 142 | 221 | 899 | 4080 | 1600 | 766 | 205 | 141 | 184 | 154 |
| 26 | 144 | 145 | 139 | 186 | 922 | 3790 | 1600 | 707 | 194 | 183 | 194 | 137 |
| 27 | 142 | 146 | 147 | 171 | 935 | 3820 | 1700 | 663 | 187 | 256 | 185 | 153 |
| 28 | 142 | 146 | 152 | 183 | 4270 | 3820 | 1700 | 621 | 191 | 224 | 172 | 136 |
| 29 | 167 | 143 | 176 | 201 | --- | 3700 | 1600 | 589 | 197 | 205 | 157 | 126 |
| 30 | 240 | 143 | 183 | 215 | --- | 3700 | 1400 | 567 | 204 | 233 | 148 | 126 |
| 31 | 198 | --- | 183 | 1380 | --- | 3900 | --- | 548 | --- | 336 | 136 | --- |
| TOTAL | 6212 | 4858 | 4372 | 7132 | 32057 | 186890 | 76290 | 28682 | 10039 | 5759 | 8130 | 4008 |
| MEAN | 200 | 162 | 141 | 230 | 1145 | 6029 | 2543 | 925 | 335 | 186 | 262 | 134 |
| MAX | 520 | 192 | 183 | 1380 | 4270 | 37600 | 4950 | 1300 | 539 | 336 | 704 | 191 |
| MIN | 116 | 143 | 119 | 144 | 469 | 1570 | 1400 | 548 | 187 | 141 | 136 | 107 |
| AC-FT | 12320 | 9640 | 8670 | 14150 | 63590 | 370700 | 151300 | 56890 | 19910 | 11420 | 16130 | 7950 |

CAL YR 1977 TOTAL 88001 MEAN 241 MAX 1180 MIN 87 AC-FT 174500
WTR YR 1978 TOTAL 374429 MEAN 1026 MAX 37600 MIN 107 AC-FT 742700

## 09497800 CIBECUE CREEK NEAR CHRYSOTILE, AZ

LOCATION.--Lat 33°50'35", long 110°33'25", in E½ sec.8, T.5 N., R.17 E. (unsurveyed), Gila County, Hydrologic Unit 15060103, in Fort Apache Indian Reservation, on right bank 0.5 mi (0.8 km) upstream from mouth and 7 mi (11 km) north of Chrysotile.

DRAINAGE AREA.--295 $mi^2$ (764 $km^2$).

PERIOD OF RECORD.--May 1959 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 3,200 ft (975 m), from topographic map.

REMARKS.--Records poor. Small diversions for irrigation in the vicinity of the village of Cibecue.

AVERAGE DISCHARGE.--19 years, 38.9 $ft^3/s$ (1.102 $m^3/s$), 28,180 acre-ft/yr (34.7 $hm^3/yr$); median of yearly mean discharges, 29 $ft^3/s$ (0.82 $m^3/s$), 21,000 acre-ft/yr (26 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,200 $ft^3/s$ (629 $m^3/s$) Sept. 2, 1977, gage height, 17.3 ft (5.27 m), on basis of slope-area measurement at gage height 17.3 ft (5.27 m); minimum daily, 4.1 $ft^3/s$ (0.12 $m^3/s$) Aug. 17-19, 1968.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*) and peak discharges above base of 1,000 $ft^3/s$ (28 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|
| Mar. 1 | 1200 | *6,540 | 185 | 9.27 | 2.825 |
| July 25 | 2030 | 1,400 | 39.6 | 4.80 | 1.463 |
| July 30 | 2300 | 1,860 | 52.7 | 5.26 | 1.603 |
| Aug. 6 | 2215 | 2,130 | 60.3 | 5.53 | 1.686 |
| Aug. 7 | 2345 | 3,340 | 94.6 | 6.64 | 2.024 |
| Aug. 10 | 1800 | 1,350 | 38.2 | 4.75 | 1.448 |
| Sept. 23 | 2330 | 1,710 | 48.4 | 5.12 | 1.561 |

Minimum daily, 7.0 $ft^3/s$ (0.198 $m^3/s$) Oct. 20-24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 7.5 | 8.0 | 10 | 10 | 31 | 3410 | 140 | 25 | 7.5 | 8.0 | 31 | 13 |
| 2 | 7.5 | 8.0 | 10 | 10 | 27 | 2520 | 120 | 20 | 7.5 | 8.0 | 20 | 13 |
| 3 | 7.5 | 9.0 | 11 | 9.5 | 33 | 1740 | 110 | 20 | 8.5 | 8.0 | 20 | 13 |
| 4 | 7.5 | 9.0 | 11 | 10 | 32 | 950 | 100 | 35 | 20 | 8.0 | 20 | 13 |
| 5 | 7.5 | 9.0 | 11 | 10 | 29 | 1020 | 90 | 33 | 19 | 8.0 | 30 | 13 |
| 6 | 25 | 9.0 | 11 | 10 | 28 | 700 | 85 | 44 | 19 | 8.0 | 160 | 13 |
| 7 | 20 | 9.0 | 11 | 10 | 27 | 500 | 78 | 31 | 18 | 9.0 | 186 | 12 |
| 8 | 85 | 9.0 | 11 | 9.5 | 29 | 350 | 75 | 28 | 15 | 9.0 | 206 | 12 |
| 9 | 7.5 | 9.5 | 11 | 9.5 | 34 | 270 | 70 | 25 | 13 | 9.0 | 80 | 12 |
| 10 | 7.5 | 9.5 | 11 | 11 | 45 | 230 | 60 | 21 | 11 | 12 | 160 | 12 |
| 11 | 7.5 | 9.0 | 11 | 13 | 155 | 200 | 55 | 18 | 10 | 14 | 34 | 12 |
| 12 | 7.5 | 9.0 | 11 | 13 | 47 | 220 | 50 | 17 | 9.0 | 35 | 13 | 13 |
| 13 | 7.5 | 8.5 | 11 | 10 | 37 | 260 | 50 | 15 | 9.0 | 22 | 12 | 13 |
| 14 | 7.5 | 8.5 | 11 | 9.5 | 46 | 200 | 45 | 13 | 8.0 | 18 | 12 | 12 |
| 15 | 7.5 | 8.5 | 11 | 15 | 43 | 170 | 45 | 12 | 8.0 | 15 | 12 | 13 |
| 16 | 7.5 | 8.8 | 10 | 15 | 39 | 130 | 40 | 12 | 8.0 | 12 | 12 | 16 |
| 17 | 7.5 | 8.8 | 10 | 55 | 34 | 110 | 40 | 11 | 8.0 | 10 | 12 | 13 |
| 18 | 7.5 | 8.6 | 10 | 40 | 31 | 105 | 40 | 10 | 8.0 | 12 | 12 | 13 |
| 19 | 7.5 | 8.6 | 10 | 20 | 29 | 110 | 35 | 9.1 | 8.0 | 11 | 12 | 11 |
| 20 | 7.0 | 8.5 | 10 | 24 | 29 | 115 | 35 | 9.0 | 8.0 | 10 | 16 | 11 |
| 21 | 7.0 | 9.5 | 10 | 17 | 29 | 105 | 30 | 9.0 | 8.0 | 9.5 | 25 | 10 |
| 22 | 7.0 | 9.5 | 10 | 14 | 30 | 100 | 30 | 9.0 | 8.0 | 8.4 | 13 | 12 |
| 23 | 7.0 | 9.5 | 10 | 13 | 33 | 200 | 30 | 8.5 | 8.0 | 10 | 13 | 37 |
| 24 | 7.0 | 10 | 10 | 13 | 38 | 150 | 30 | 8.0 | 8.0 | 32 | 13 | 115 |
| 25 | 8.0 | 10 | 10 | 10 | 44 | 310 | 20 | 8.5 | 8.0 | 219 | 14 | 32 |
| 26 | 8.0 | 10 | 10 | 11 | 51 | 120 | 25 | 8.5 | 8.0 | 135 | 14 | 12 |
| 27 | 8.0 | 10 | 10 | 11 | 58 | 110 | 25 | 8.0 | 8.0 | 82 | 14 | 9.0 |
| 28 | 8.0 | 10 | 11 | 11 | 1050 | 100 | 25 | 8.0 | 8.0 | 52 | 14 | 9.0 |
| 29 | 8.0 | 10 | 11 | 11 | --- | 90 | 25 | 8.0 | 8.0 | 39 | 14 | 9.0 |
| 30 | 8.0 | 10 | 12 | 12 | --- | 85 | 25 | 7.5 | 8.0 | 178 | 14 | 8.5 |
| 31 | 8.0 | --- | 11 | 28 | --- | 100 | --- | 7.5 | --- | 128 | 14 | --- |
| TOTAL | 341.0 | 274.3 | 328 | 465.0 | 2138 | 14780 | 1628 | 498.6 | 302.5 | 1138.9 | 1222 | 506.5 |
| MEAN | 11.0 | 9.14 | 10.6 | 15.0 | 76.4 | 477 | 54.3 | 16.1 | 10.1 | 36.7 | 39.4 | 16.9 |
| MAX | 85 | 10 | 12 | 55 | 1050 | 3410 | 140 | 44 | 20 | 219 | 206 | 115 |
| MIN | 7.0 | 8.0 | 10 | 9.5 | 27 | 85 | 20 | 7.5 | 7.5 | 8.0 | 12 | 8.5 |
| AC-FT | 676 | 544 | 651 | 922 | 4240 | 29320 | 3230 | 989 | 600 | 2260 | 2420 | 1000 |

CAL YR 1977 TOTAL 6647.2 MEAN 18.2 MAX 1300 MIN 6.8 AC-FT 13180
WTR YR 1978 TOTAL 23622.8 MEAN 64.7 MAX 3410 MIN 7.0 AC-FT 46860

NOTE.--No gage-height record June 8 to July 11 and Mar. 6 to May 4.

## 09497850 CANYON CREEK NEAR GLOBE, AZ

LOCATION.--Lat 33°49'47", long 110°39'50", in sec.17, T.6 N., R.16 E. (unsurveyed), Gila County, Hydrologic Unit 15060103, on left bank 1.9 mi (3.1 km) upstream from mouth, 10 mi (16 km) northwest of Seneca, and 31 mi (50 km) north of Globe.

DRAINAGE AREA.--316 $mi^2$ (818 $km^2$).

PERIOD OF RECORD.--October 1975 to current year (monthly discharge only, October 1976 to September 1977).

GAGE.--Water-stage recorder. Altitude of gage is 3,080 ft (940 m), from topographic map.

REMARKS.--Records fair.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,100 $ft^3/s$ (598 $m^3/s$) Mar. 1, 1978, gage height, 18.8 ft (5.73 m), from rating curve based on slope-area measurement at gage height 18.8 ft (5.73 m) and step-backwater computation; minimum not determined, probably occurred in June 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*), (from rating curve as explained above) and peak discharges above base of 1,000 $ft^3/s$ (28 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge (m) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|
| Jan. 31 | 2145 | 1,260 | 35.7 | 6.26 | 1.908 |
| Mar. 1 | Unknown | *21,100 | 598 | 18.8 | 5.73 |
| Mar. 23 | 0045 | 1,310 | 37.1 | 6.34 | 1.932 |

Minimum daily, 4.0 $ft^3/s$ (0.113 $m^3/s$) Sept. 23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 13 | 13 | 9.2 | 9.9 | 434 | 11000 | 404 | 37 | 15 | 6.4 | 4.5 | 6.4 |
| 2 | 12 | 12 | 9.2 | 9.5 | 126 | 7600 | 340 | 45 | 14 | 5.7 | 4.5 | 7.0 |
| 3 | 11 | 11 | 9.2 | 9.2 | 48 | 3170 | 241 | 41 | 14 | 5.7 | 7.0 | 7.0 |
| 4 | 11 | 8.0 | 9.2 | 8.9 | 33 | 1380 | 207 | 37 | 13 | 5.7 | 16 | 7.7 |
| 5 | 10 | 8.0 | 9.2 | 8.9 | 30 | 1430 | 174 | 33 | 13 | 6.4 | 11 | 8.3 |
| 6 | 11 | 8.2 | 9.2 | 8.5 | 36 | 1370 | 148 | 36 | 13 | 5.7 | 9.9 | 16 |
| 7 | 75 | 9.5 | 9.2 | 8.5 | 85 | 918 | 128 | 36 | 13 | 6.4 | 20 | 13 |
| 8 | 42 | 10 | 9.2 | 8.5 | 108 | 708 | 110 | 30 | 11 | 6.4 | 21 | 9.0 |
| 9 | 22 | 9.8 | 9.2 | 8.5 | 80 | 614 | 108 | 28 | 11 | 6.4 | 15 | 7.0 |
| 10 | 127 | 9.5 | 8.2 | 9.2 | 65 | 490 | 88 | 28 | 11 | 6.4 | 48 | 6.4 |
| 11 | 16 | 9.2 | 8.2 | 13 | 340 | 351 | 108 | 27 | 10 | 20 | 18 | 6.4 |
| 12 | 15 | 9.2 | 8.2 | 14 | 220 | 388 | 108 | 26 | 9.7 | 14 | 13 | 5.7 |
| 13 | 14 | 8.9 | 8.2 | 12 | 130 | 569 | 90 | 25 | 9.0 | 11 | 9.2 | 5.7 |
| 14 | 13 | 8.9 | 8.2 | 11 | 200 | 448 | 77 | 25 | 8.3 | 9.0 | 7.0 | 5.0 |
| 15 | 13 | 8.9 | 8.2 | 14 | 200 | 347 | 64 | 24 | 7.7 | 8.3 | 5.7 | 4.5 |
| 16 | 13 | 8.9 | 8.2 | 21 | 390 | 289 | 59 | 23 | 7.7 | 7.0 | 5.0 | 8.3 |
| 17 | 13 | 8.9 | 8.2 | 59 | 110 | 284 | 53 | 23 | 7.0 | 6.4 | 5.7 | 11 |
| 18 | 12 | 8.9 | 8.2 | 121 | 75 | 279 | 47 | 23 | 7.0 | 7.0 | 5.0 | 6.4 |
| 19 | 12 | 8.9 | 8.0 | 67 | 60 | 279 | 46 | 22 | 7.0 | 7.0 | 4.5 | 5.7 |
| 20 | 10 | 8.9 | 8.0 | 54 | 50 | 379 | 42 | 21 | 7.0 | 13 | 6.4 | 5.7 |
| 21 | 10 | 8.5 | 8.0 | 34 | 40 | 363 | 41 | 21 | 6.4 | 10 | 6.4 | 4.5 |
| 22 | 10 | 8.5 | 8.0 | 24 | 35 | 693 | 40 | 20 | 6.4 | 10 | 6.4 | 4.5 |
| 23 | 10 | 8.5 | 7.7 | 22 | 35 | 768 | 38 | 19 | 6.4 | 146 | 5.7 | 4.0 |
| 24 | 10 | 8.9 | 8.2 | 20 | 35 | 420 | 39 | 19 | 5.7 | 19 | 5.7 | 44 |
| 25 | 10 | 9.1 | 8.2 | 14 | 40 | 379 | 39 | 19 | 5.1 | 13 | 6.4 | 15 |
| 26 | 11 | 9.1 | 8.2 | 15 | 45 | 375 | 39 | 19 | 4.5 | 9.7 | 8.3 | 8.3 |
| 27 | 10 | 8.9 | 8.5 | 16 | 50 | 371 | 38 | 19 | 4.5 | 15 | 7.7 | 6.4 |
| 28 | 10 | 8.9 | 8.9 | 15 | 2800 | 316 | 37 | 19 | 5.1 | 14 | 6.4 | 5.7 |
| 29 | 13 | 9.2 | 9.9 | 16 | --- | 293 | 37 | 17 | 5.7 | 9.7 | 6.4 | 5.7 |
| 30 | 13 | 9.2 | 11 | 20 | --- | 287 | 36 | 16 | 5.7 | 7.7 | 6.4 | 5.7 |
| 31 | 13 | --- | 11 | 382 | --- | 310 | --- | 15 | --- | 5.7 | 7.0 | --- |
| TOTAL | 585 | 277.4 | 270.2 | 1053.6 | 5900 | 36868 | 3026 | 793 | 263.9 | 423.7 | 309.2 | 256.0 |
| MEAN | 18.9 | 9.25 | 8.72 | 34.0 | 211 | 1189 | 101 | 25.6 | 8.80 | 13.7 | 9.97 | 8.53 |
| MAX | 127 | 13 | 11 | 382 | 2800 | 11000 | 404 | 45 | 15 | 146 | 48 | 44 |
| MIN | 10 | 8.0 | 7.7 | 8.5 | 30 | 279 | 36 | 15 | 4.5 | 5.7 | 4.5 | 4.0 |
| AC-FT | 1160 | 550 | 536 | 2090 | 11700 | 73130 | 6000 | 1570 | 523 | 840 | 613 | 508 |

WTR YR 1978 TOTAL 50026.0 MEAN 137 MAX 11000 MIN 4.0 AC-FT 99230

NOTE.--No gage-height record Feb. 28 to Mar. 2.

## 09497980 CHERRY CREEK NEAR GLOBE, AZ

LOCATION.--Lat 33°49'40", long 110°51'20", in SW¼ sec.30, T.6 N., R.15 E. (unsurveyed), Gila County, Hydrologic Unit 15060103, in Tonto National Forest, on left bank 0.2 mi (0.3 km) upstream from Devils Chasm, 13 mi (21 km) upstream from mouth, and 30 mi (48 km) north of Globe.

DRAINAGE AREA.--200 $mi^2$ (518 $km^2$).

PERIOD OF RECORD.--May 1965 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 3,200 ft (980 m), from topographic map.

REMARKS.--Records fair.

AVERAGE DISCHARGE.--13 years, 33.6 $ft^3/s$ (0.952 $m^3/s$), 24,340 acre-ft/yr (30.0 $hm^3/yr$); median of yearly mean discharges, 21 $ft^3/s$ (0.59 $m^3/s$), 15,200 acre-ft/yr (19 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,300 $ft^3/s$ (235 $m^3/s$) Oct. 19, 1972, gage height, 14.0 ft (4.27 m), from flood-marks, from rating curve extended above 330 $ft^3/s$ (9.3 $m^3/s$) on basis of slope-area measurements at gage heights 5.85, 6.70, 8.70, and 12.3 ft (1.783, 2.042, 2.652, and 3.75 m); minimum daily, 2.4 $ft^3/s$ (0.068 $m^3/s$) Sept. 17, 22, 25, 29, 1978.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*), (from rating curve extended above 330 $ft^3/s$ or 9.3 $m^3/s$ as explained above) and peak discharges above base of 750 $ft^3/s$ (21.2 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|
| Jan. 31 | 1700 | 904 | 25.6 | 4.01 | 1.222 |
| Feb. 11 | 0300 | 920 | 26.1 | 4.05 | 1.234 |
| Mar. 1 | 1200 | *5,370 | 152 | 10.91 | 3.325 |

Minimum daily, 2.4 $ft^3/s$ (0.068 $m^3/s$) Sept. 17, 22, 25, 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 7.0 | 4.9 | 4.1 | 5.8 | 565 | 2700 | 19 | 15 | 6.9 | 5.7 | 7.0 | 3.9 |
| 2 | 7.0 | 4.7 | 4.1 | 5.7 | 154 | 3660 | 20 | 17 | 6.9 | 5.7 | 7.5 | 4.1 |
| 3 | 7.0 | 4.5 | 4.1 | 5.7 | 76 | 1920 | 17 | 16 | 6.9 | 5.7 | 7.5 | 4.1 |
| 4 | 6.0 | 4.5 | 4.1 | 5.7 | 56 | 729 | 14 | 14 | 6.4 | 5.7 | 7.7 | 4.6 |
| 5 | 6.0 | 4.5 | 4.1 | 5.7 | 40 | 750 | 12 | 13 | 7.0 | 5.7 | 7.5 | 5.7 |
| 6 | 5.0 | 4.5 | 4.1 | 5.7 | 35 | 520 | 11 | 15 | 7.0 | 5.7 | 8.0 | 4.2 |
| 7 | 5.0 | 5.0 | 4.1 | 6.1 | 30 | 380 | 10 | 14 | 7.0 | 5.7 | 7.5 | 4.1 |
| 8 | 5.0 | 4.9 | 4.1 | 5.9 | 25 | 243 | 9.9 | 12 | 7.0 | 5.7 | 7.5 | 4.0 |
| 9 | 5.0 | 4.5 | 4.1 | 5.7 | 25 | 210 | 12 | 12 | 7.0 | 5.4 | 7.5 | 4.2 |
| 10 | 10 | 4.5 | 4.1 | 6.0 | 74 | 190 | 13 | 11 | 7.0 | 5.2 | 7.0 | 4.1 |
| 11 | 8.0 | 4.5 | 4.1 | 8.7 | 538 | 180 | 12 | 12 | 7.0 | 5.2 | 6.7 | 3.8 |
| 12 | 5.0 | 4.5 | 4.1 | 6.4 | 210 | 200 | 12 | 11 | 7.0 | 5.2 | 5.7 | 3.6 |
| 13 | 5.0 | 4.5 | 4.1 | 5.7 | 125 | 250 | 11 | 11 | 7.0 | 5.2 | 5.5 | 4.0 |
| 14 | 5.0 | 4.5 | 4.3 | 5.2 | 231 | 240 | 10 | 10 | 7.0 | 5.4 | 4.9 | 4.2 |
| 15 | 5.0 | 4.5 | 4.7 | 13 | 203 | 211 | 9.7 | 10 | 6.6 | 4.9 | 5.0 | 2.6 |
| 16 | 5.0 | 4.5 | 5.0 | 12 | 151 | 111 | 9.1 | 9.7 | 6.5 | 5.2 | 5.1 | 2.5 |
| 17 | 5.0 | 4.5 | 5.0 | 118 | 121 | 71 | 9.8 | 9.7 | 6.5 | 5.0 | 5.1 | 2.4 |
| 18 | 5.0 | 4.5 | 5.2 | 153 | 88 | 53 | 9.7 | 9.1 | 6.5 | 5.3 | 5.1 | 4.3 |
| 19 | 5.2 | 4.5 | 5.2 | 46 | 70 | 41 | 9.8 | 9.1 | 6.5 | 5.2 | 4.9 | 4.2 |
| 20 | 5.2 | 4.5 | 5.2 | 33 | 61 | 31 | 10 | 9.1 | 6.4 | 5.7 | 4.1 | 4.0 |
| 21 | 5.2 | 4.5 | 5.2 | 23 | 87 | 24 | 9.8 | 7.9 | 6.3 | 5.7 | 4.1 | 4.1 |
| 22 | 5.2 | 4.5 | 5.2 | 18 | 133 | 47 | 10 | 7.9 | 6.3 | 6.1 | 4.5 | 2.4 |
| 23 | 4.9 | 4.5 | 5.2 | 16 | 162 | 136 | 9.9 | 7.4 | 6.2 | 7.8 | 4.2 | 4.1 |
| 24 | 4.9 | 4.5 | 5.2 | 14 | 159 | 61 | 10 | 7.4 | 6.1 | 7.5 | 4.1 | 3.1 |
| 25 | 4.5 | 4.5 | 5.2 | 11 | 128 | 36 | 9.3 | 7.9 | 6.1 | 8.3 | 4.0 | 2.4 |
| 26 | 4.5 | 4.5 | 5.2 | 11 | 99 | 25 | 8.8 | 7.4 | 6.1 | 22 | 3.8 | 2.7 |
| 27 | 4.6 | 4.5 | 5.7 | 9.8 | 87 | 20 | 8.4 | 7.4 | 6.1 | 12 | 3.9 | 2.5 |
| 28 | 4.7 | 4.5 | 5.7 | 9.4 | 1310 | 17 | 8.1 | 7.4 | 6.4 | 8.4 | 4.0 | 2.5 |
| 29 | 5.7 | 4.1 | 6.1 | 9.1 | --- | 14 | 10 | 7.4 | 6.5 | 7.3 | 4.1 | 2.4 |
| 30 | 5.2 | 4.1 | 6.1 | 12 | --- | 12 | 12 | 6.9 | 5.8 | 7.0 | 4.0 | 4.4 |
| 31 | 4.9 | --- | 6.1 | 480 | --- | 11 | --- | 6.9 | --- | 6.6 | 4.0 | --- |
| TOTAL | 170.7 | 135.7 | 148.8 | 1072.3 | 5043 | 13113 | 337.3 | 321.6 | 198.0 | 207.2 | 171.5 | 109.2 |
| MEAN | 5.51 | 4.52 | 4.80 | 34.6 | 180 | 423 | 11.2 | 10.4 | 6.60 | 6.68 | 5.53 | 3.64 |
| MAX | 10 | 5.0 | 6.1 | 480 | 1310 | 3680 | 20 | 17 | 7.0 | 22 | 8.0 | 5.7 |
| MIN | 4.5 | 4.1 | 4.1 | 5.2 | 25 | 11 | 8.1 | 6.9 | 5.8 | 4.9 | 3.8 | 2.4 |
| AC-FT | 339 | 269 | 295 | 2130 | 10000 | 26010 | 669 | 638 | 393 | 411 | 340 | 217 |

CAL YR 1977 TOTAL 2859.2 MEAN 7.83 MAX 88 MIN 3.7 AC-FT 5670
WTR YR 1978 TOTAL 21028.3 MEAN 57.6 MAX 3680 MIN 2.4 AC-FT 41710

## 09498500 SALT RIVER NEAR ROOSEVELT, AZ

LOCATION.--Lat 33°37'10", long 110°55'15", in SE¼NE¼ sec.9, T.3 N., R.14 E. (unsurveyed), Gila County, Hydrologic Unit 15060103, in Tonto National Forest on left bank 100 ft (30 m) downstream from bridge on State Highway 288, 0.3 mi (0.5 km) downstream from Pinal Creek, 1 mi (2 km) upstream from diversion dam for power canal, 14 mi (23 km) east of village of Roosevelt, and 17 mi (27 km) upstream from Roosevelt Dam.

DRAINAGE AREA.--4,306 $mi^2$ (11,153 $km^2$).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1913 to current year (monthly discharge only January to September 1913) see WSP 1313.

REVISED RECORDS.--WSP 1049: 1914, 1916, 1918-19, 1926. WSP 1343: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,177.14 ft (663.592 m) National Geodetic Vertical Datum of 1929. Prior to 1925, nonrecording gage at diversion dam about 1 mi (2 km) downstream at different datum. Nonrecording gage at present site and datum 1925 to Jan. 17, 1935. May 20, 1955, to July 30, 1959, supplementary water-stage recorder at diversion dam.

REMARKS.--Records good. Several small diversions for irrigation of about 4,000 acres (16.2 $km^2$) above station and two transbasin diversions above station, one into basin from Show Low Creek and one out of basin to Willow Creek. Records show inflow to Roosevelt Lake. Tonto Creek also contributes to Roosevelt Lake; see records elsewhere in this report.

AVERAGE DISCHARGE.--65 years, 838 $ft^3/s$ (23.73 $m^3/s$), 607,100 acre-ft/yr (749 $hm^3/yr$); median of yearly mean discharges, 650 $ft^3/s$ (18.4 $m^3/s$), 471,000 acre-ft/yr (581 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 117,000 $ft^3/s$ (3,310 $m^3/s$) Mar. 14, 1941, gage height, 24.4 ft (7.44 m), from rating curve extended above 55,000 $ft^3/s$ (1,600 $m^3/s$) on basis of velocity-area studies and float-area measurements at 66,000 $ft^3/s$ (1,870 $m^3/s$) and 102,000 $ft^3/s$ (2,890 $m^3/s$); maximum gage height, 28.55 ft (8.702 m) Mar. 2, 1978; minimum discharge, 59 $ft^3/s$ (1.67 $m^3/s$) all or part of each day, July 1-4, 7-12, 1955.

EXTREMES OUTSIDE PERIOD OF RECORD.--A discharge of about 42 $ft^3/s$ (1.19 $m^3/s$) was reported Aug. 5, 1911.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*) and peak discharges above base of 4,000 $ft^3/s$ (113 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|
| Feb. 1 | 1400 | 8,050 | 228 | 12.58 | 3.834 |
| Feb. 12 | 0230 | 4,780 | 135 | 11.16 | 3.402 |
| Mar. 2 | 0300 | *89,400 | 2,530 | 28.55 | 8.702 |
| Mar. 13 | 1100 | 5,820 | 165 | 11.70 | 3.566 |
| Mar. 24 | 0030 | 6,600 | 187 | 11.98 | 3.652 |
| Apr. 2 | 0630 | 6,620 | 187 | 11.98 | 3.652 |

Minimum daily, 137 $ft^3/s$ (3.88 $m^3/s$) July 17, 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 180 | 218 | 170 | 202 | 6630 | 51000 | 5520 | 1670 | 535 | 182 | 444 | 163 |
| 2 | 161 | 202 | 165 | 202 | 4300 | 77200 | 6320 | 1550 | 530 | 182 | 682 | 156 |
| 3 | 149 | 198 | 161 | 198 | 2060 | 49400 | 5320 | 1450 | 515 | 178 | 700 | 178 |
| 4 | 145 | 223 | 158 | 192 | 1290 | 19700 | 4860 | 1340 | 490 | 170 | 580 | 170 |
| 5 | 143 | 192 | 165 | 185 | 945 | 9480 | 4560 | 1220 | 470 | 160 | 445 | 185 |
| 6 | 185 | 188 | 168 | 185 | 777 | 9680 | 4180 | 1200 | 440 | 158 | 455 | 200 |
| 7 | 830 | 226 | 161 | 180 | 707 | 7200 | 4060 | 1230 | 428 | 158 | 565 | 190 |
| 8 | 475 | 226 | 158 | 175 | 819 | 5020 | 4100 | 1220 | 418 | 154 | 723 | 188 |
| 9 | 430 | 229 | 156 | 170 | 986 | 4000 | 4120 | 1160 | 390 | 149 | 410 | 181 |
| 10 | 390 | 218 | 156 | 179 | 980 | 3670 | 3470 | 1110 | 366 | 147 | 448 | 156 |
| 11 | 342 | 215 | 154 | 168 | 3210 | 3440 | 2860 | 1120 | 340 | 143 | 450 | 147 |
| 12 | 283 | 218 | 158 | 182 | 3800 | 3350 | 2540 | 996 | 330 | 170 | 509 | 143 |
| 13 | 256 | 210 | 156 | 182 | 1900 | 4890 | 2430 | 973 | 320 | 205 | 775 | 141 |
| 14 | 235 | 205 | 158 | 182 | 1540 | 4310 | 2730 | 996 | 310 | 163 | 346 | 139 |
| 15 | 220 | 200 | 158 | 210 | 1820 | 3380 | 2890 | 1060 | 300 | 154 | 301 | 139 |
| 16 | 210 | 195 | 158 | 223 | 1440 | 2730 | 2990 | 1150 | 298 | 149 | 262 | 145 |
| 17 | 198 | 192 | 154 | 298 | 1280 | 2250 | 2940 | 1180 | 283 | 137 | 238 | 147 |
| 18 | 195 | 192 | 154 | 488 | 968 | 2130 | 2720 | 1120 | 274 | 143 | 223 | 175 |
| 19 | 185 | 190 | 156 | 435 | 728 | 2280 | 2460 | 1050 | 265 | 149 | 208 | 168 |
| 20 | 180 | 188 | 152 | 414 | 804 | 2780 | 2260 | 996 | 247 | 149 | 198 | 158 |
| 21 | 172 | 182 | 152 | 350 | 592 | 3450 | 2120 | 924 | 241 | 139 | 188 | 154 |
| 22 | 170 | 182 | 154 | 301 | 714 | 4000 | 2040 | 889 | 232 | 137 | 200 | 152 |
| 23 | 170 | 182 | 145 | 283 | 847 | 5720 | 1940 | 861 | 220 | 195 | 226 | 149 |
| 24 | 170 | 180 | 145 | 280 | 1020 | 8250 | 1850 | 840 | 205 | 208 | 220 | 338 |
| 25 | 168 | 178 | 152 | 277 | 1110 | 5420 | 1800 | 819 | 195 | 170 | 208 | 310 |
| 26 | 168 | 175 | 161 | 259 | 1150 | 4820 | 1800 | 798 | 185 | 285 | 205 | 247 |
| 27 | 165 | 172 | 165 | 235 | 1160 | 4800 | 1850 | 735 | 175 | 292 | 208 | 192 |
| 28 | 165 | 174 | 168 | 218 | 8260 | 4870 | 1960 | 670 | 215 | 314 | 200 | 190 |
| 29 | 192 | 175 | 192 | 226 | --- | 4870 | 1920 | 634 | 205 | 277 | 188 | 182 |
| 30 | 226 | 172 | 196 | 250 | --- | 4870 | 1810 | 592 | 188 | 268 | 185 | 170 |
| 31 | 247 | --- | 202 | 644 | --- | 5040 | --- | 560 | --- | 431 | 170 | --- |
| TOTAL | 7205 | 5897 | 5008 | 7993 | 51437 | 321980 | 92420 | 32093 | 9608 | 5916 | 11160 | 5313 |
| MEAN | 232 | 197 | 161 | 258 | 1837 | 10390 | 3081 | 1035 | 320 | 191 | 360 | 177 |
| MAX | 630 | 229 | 202 | 644 | 8260 | 77200 | 6320 | 1670 | 535 | 431 | 775 | 338 |
| MIN | 143 | 172 | 145 | 170 | 592 | 2130 | 1800 | 560 | 175 | 137 | 170 | 139 |
| AC-FT | 14290 | 11700 | 9930 | 15850 | 102000 | 638600 | 183300 | 63660 | 19060 | 11730 | 22140 | 10540 |

CAL YR 1977 TOTAL 99421 MEAN 272 MAX 1920 MIN 98 AC-FT 197200
WTR YR 1978 TOTAL 556028 MEAN 1523 MAX 77200 MIN 137 AC-FT 1103000

09498500 SALT RIVER NEAR ROOSEVELT, AZ--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--April 1958 to October 1967, January 1976 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: April 1958 to October 1967.

INSTRUMENTATION.--Water temperature recorder from April 1958 to October 1967.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | TUR-BID-ITY (JTU) | TUR-BID-ITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) | COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 27... | 1115 | 166 | 3750 | 8.2 | 17.0 | 15 | -- | 8.8 | K4 |
| NOV | | | | | | | | | |
| 29... | 1045 | 175 | 3780 | 8.1 | 11.0 | -- | -- | 11.2 | K2 |
| DEC | | | | | | | | | |
| 29... | 1115 | 188 | 3000 | 7.9 | 10.0 | 15 | -- | 9.9 | 340 |
| JAN | | | | | | | | | |
| 25... | 1100 | 259 | 2440 | 8.6 | 6.0 | 15 | -- | 13.4 | K10 |
| MAR | | | | | | | | | |
| 10... | 1300 | 3900 | 445 | 7.8 | 11.5 | 40 | -- | 10.0 | K10 |
| APR | | | | | | | | | |
| 10... | 1130 | 3470 | 378 | 7.9 | 11.0 | 20 | -- | 10.0 | K6 |
| MAY | | | | | | | | | |
| 03... | 1100 | 1470 | 660 | 8.2 | 15.0 | 3 | -- | 9.3 | K8 |
| JUN | | | | | | | | | |
| 07... | 1100 | 422 | 1550 | 8.2 | 22.0 | 1 | -- | 8.0 | K20 |
| JUL | | | | | | | | | |
| 06... | 1130 | 156 | 3500 | 8.2 | 25.0 | 1 | -- | 8.3 | K14 |
| AUG | | | | | | | | | |
| 02... | 1115 | 707 | 2920 | 8.1 | 27.5 | 920 | -- | 7.0 | K8000 |
| 30... | 1030 | 182 | 2980 | 8.0 | 24.5 | 37 | -- | 7.6 | K43 |
| SEP | | | | | | | | | |
| 27... | 1300 | 180 | 3480 | 8.3 | 25.0 | -- | 580 | 8.6 | 700 |

| DATE | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | BICAR-BONATE (MG/L AS HCO3) | CAR-BONATE (MG/L AS CO3) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 27... | 360 | 190 | 91 | 33 | 630 | 14 | 13 | 210 | 0 |
| NOV | | | | | | | | | |
| 29... | 390 | 200 | 98 | 36 | 600 | 13 | 15 | 230 | 0 |
| DEC | | | | | | | | | |
| 29... | 380 | 200 | 96 | 35 | 730 | 16 | 16 | 220 | 0 |
| JAN | | | | | | | | | |
| 25... | 320 | 130 | 85 | 26 | 390 | 9.5 | 9.4 | 230 | 1 |
| MAR | | | | | | | | | |
| 10... | 120 | 33 | 34 | 9.3 | 46 | 1.8 | 2.4 | 110 | 0 |
| APR | | | | | | | | | |
| 10... | 91 | 31 | 26 | 6.4 | 43 | 2.0 | 1.8 | 73 | 0 |
| MAY | | | | | | | | | |
| 03... | 120 | 37 | 33 | 8.0 | 91 | 3.7 | 3.2 | 96 | 0 |
| JUN | | | | | | | | | |
| 07... | 220 | 89 | 60 | 17 | 240 | 7.0 | 6.2 | 160 | 0 |
| JUL | | | | | | | | | |
| 06... | 390 | 250 | 96 | 37 | 580 | 13 | 13 | 170 | 0 |
| AUG | | | | | | | | | |
| 02... | 330 | 150 | 91 | 24 | 460 | 11 | 12 | 210 | 0 |
| 30... | 320 | 160 | 82 | 29 | 520 | 13 | 15 | 200 | 0 |
| SEP | | | | | | | | | |
| 27... | 340 | 170 | 86 | 30 | 600 | 14 | 12 | 200 | 0 |

K Based on non-ideal colony count.

09498500 SALT RIVER NEAR ROOSEVELT, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | SULFATE DIS- SOLVED (MG/L AS SO4) | CHLO- RIDE, DIS- SOLVED (MG/L AS CL) | FLUO- RIDE, DIS- SOLVED (MG/L AS F) | SILICA, DIS- SOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) | SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) | SOLIDS, DIS- SOLVED (TONS PER AC-FT) | NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 27... | 160 | 1000 | .3 | 22 | 2030 | 2050 | 2.76 | .14 |
| NOV | | | | | | | | |
| 29... | 140 | 980 | .2 | 20 | -- | 2000 | 2.72 | .00 |
| DEC | | | | | | | | |
| 29... | 160 | 1100 | .2 | 20 | 2350 | 2270 | 3.20 | .05 |
| JAN | | | | | | | | |
| 25... | 120 | 590 | .2 | 18 | 1360 | 1350 | 1.85 | .01 |
| MAR | | | | | | | | |
| 10... | 41 | 70 | .1 | 16 | 273 | 274 | .37 | .16 |
| APR | | | | | | | | |
| 10... | 23 | 73 | .1 | 15 | 214 | 225 | .29 | .05 |
| MAY | | | | | | | | |
| 03... | 35 | 140 | .1 | 16 | 363 | 374 | .49 | .01 |
| JUN | | | | | | | | |
| 07... | 67 | 390 | .2 | 17 | 816 | 877 | 1.11 | .05 |
| JUL | | | | | | | | |
| 06... | 120 | 970 | .2 | 17 | 1960 | 1920 | 2.67 | .01 |
| AUG | | | | | | | | |
| 02... | 110 | 740 | .2 | 16 | 1650 | 1560 | 2.24 | .25 |
| 30... | 130 | 860 | .2 | 21 | 1770 | 1760 | 2.41 | .02 |
| SEP | | | | | | | | |
| 27... | 150 | 1000 | .2 | 17 | 2030 | 1990 | 2.76 | .06 |

| DATE | NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | PHOS- PHORUS, TOTAL (MG/L AS P) | PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P) |
|---|---|---|---|---|---|---|---|
| OCT | | | | | | | |
| 27... | .14 | .14 | -- | .17 | .31 | .02 | .03 |
| NOV | | | | | | | |
| 29... | .04 | .00 | -- | -- | -- | .00 | .00 |
| DEC | | | | | | | |
| 29... | .12 | .05 | .33 | -- | .45 | .00 | .01 |
| JAN | | | | | | | |
| 25... | .01 | .01 | -- | .01 | .02 | .04 | .00 |
| MAR | | | | | | | |
| 10... | .01 | .16 | -- | .61 | .62 | .13 | .04 |
| APR | | | | | | | |
| 10... | .04 | .05 | -- | .31 | .35 | .10 | .03 |
| MAY | | | | | | | |
| 03... | .01 | .01 | -- | .15 | .16 | .04 | .01 |
| JUN | | | | | | | |
| 07... | .15 | .05 | -- | .40 | .55 | .03 | .06 |
| JUL | | | | | | | |
| 06... | .01 | .01 | -- | .25 | .26 | .02 | .05 |
| AUG | | | | | | | |
| 02... | .26 | .25 | -- | 3.3 | 3.6 | 1.1 | .05 |
| 30... | .01 | .02 | -- | .28 | .29 | .05 | .02 |
| SEP | | | | | | | |
| 27... | .70 | .06 | -- | 1.5 | 2.2 | .34 | .03 |

09498500 SALT RIVER NEAR ROOSEVELT, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) | BORON, TOTAL RECOV-ERABLE (UG/L AS B) | BORON, DIS-SOLVED (UG/L AS B) | CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) | IRON, TOTAL RECOV-ERABLE (UG/L AS FE) | IRON, DIS-SOLVED (UG/L AS FE) | LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | |
| 27... | 8 | 100 | 440 | 340 | <10 | 15 | <10 | 380 | 20 | <100 |
| NOV | | | | | | | | | | |
| 29... | 8 | 300 | 400 | 350 | 1 | 0 | 8 | 950 | 10 | 10 |
| DEC | | | | | | | | | | |
| 29... | 7 | 100 | 500 | 380 | 2 | 10 | 15 | 700 | 20 | 8 |
| JAN | | | | | | | | | | |
| 25... | 5 | 0 | 240 | 220 | 3 | 0 | 12 | 520 | 0 | 18 |
| MAR | | | | | | | | | | |
| 10... | 3 | 100 | 110 | 50 | 0 | 10 | 100 | 5100 | 50 | 19 |
| APR | | | | | | | | | | |
| 10... | 2 | 0 | 90 | 30 | 3 | 0 | 5 | 1000 | 50 | 28 |
| MAY | | | | | | | | | | |
| 03... | 3 | 0 | 120 | 50 | 6 | 10 | 4 | 440 | 20 | 88 |
| JUN | | | | | | | | | | |
| 07... | 4 | 200 | 250 | 140 | 1 | 0 | 8 | 160 | 10 | 8 |
| JUL | | | | | | | | | | |
| 06... | 4 | 300 | 370 | 320 | 6 | 10 | 20 | 40 | 30 | 15 |
| AUG | | | | | | | | | | |
| 02... | 15 | 400 | 320 | 260 | 2 | 40 | -- | 24000 | 40 | 38 |
| 30... | 7 | 200 | 360 | 300 | 1 | 0 | 11 | 810 | 40 | 16 |
| SEP | | | | | | | | | | |
| 27... | 7 | 200 | 390 | 350 | 0 | 20 | 22 | 10000 | 20 | 13 |

| DATE | MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) | MANGA-NESE, DIS-SOLVED (UG/L AS MN) | MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) | SELE-NIUM, TOTAL (UG/L AS SE) | SILVER, TOTAL RECOV-ERABLE (UG/L AS AG) | ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) | CARBON, ORGANIC TOTAL (MG/L AS C) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS (UG/L) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 27... | 30 | 8 | .0 | 0 | <10 | 40 | 1.6 | .00 | 0 |
| NOV | | | | | | | | | |
| 29... | 20 | 8 | .0 | 0 | 0 | 10 | 1.3 | .00 | 2 |
| DEC | | | | | | | | | |
| 29... | 50 | 50 | .1 | 0 | 1 | 30 | .9 | .00 | 0 |
| JAN | | | | | | | | | |
| 25... | 30 | 20 | .0 | 0 | 0 | 30 | 1.9 | 1.0 | 4 |
| MAR | | | | | | | | | |
| 10... | 140 | 20 | .0 | 0 | 1 | 60 | -- | .00 | 1 |
| APR | | | | | | | | | |
| 10... | 40 | 10 | .0 | 0 | 0 | 10 | 3.2 | .00 | 3 |
| MAY | | | | | | | | | |
| 03... | 30 | 20 | .0 | 0 | 0 | 20 | 2.3 | .00 | 0 |
| JUN | | | | | | | | | |
| 07... | 30 | 10 | .0 | 0 | 0 | 20 | 1.6 | .00 | 0 |
| JUL | | | | | | | | | |
| 06... | 60 | 30 | .0 | 0 | 0 | 50 | 2.1 | .00 | 0 |
| AUG | | | | | | | | | |
| 02... | 1200 | 10 | .0 | 3 | 0 | 140 | 29 | .00 | 2 |
| 30... | 90 | 10 | .0 | 0 | 0 | 30 | 3.0 | .00 | 0 |
| SEP | | | | | | | | | |
| 27... | 450 | 0 | .0 | 0 | 0 | 50 | -- | .00 | 0 |

< Actual value is known to be less than value shown.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | CARBON, ORGANIC TOTAL (MG/L AS C) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS (UG/L) | PHYTO-PLANK-TON, TOTAL (CELLS PER ML) | PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M | PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M | SEDI-MENT, SUS-PENDED (MG/L) |
|---|---|---|---|---|---|---|---|
| OCT | | | | | | | |
| 27... | 1.6 | .00 | 0 | -- | -- | -- | -- |
| NOV | | | | | | | |
| 29... | 1.3 | .00 | 2 | -- | -- | -- | -- |
| DEC | | | | | | | |
| 29... | .9 | .00 | 0 | -- | -- | -- | -- |
| JAN | | | | | | | |
| 25... | 1.9 | 1.0 | 4 | -- | -- | -- | -- |
| MAR | | | | | | | |
| 02... | -- | -- | -- | -- | -- | -- | 8520 |
| 10... | -- | .00 | 1 | -- | -- | -- | -- |
| APR | | | | | | | |
| 10... | 3.2 | .00 | 3 | -- | -- | -- | -- |
| MAY | | | | | | | |
| 03... | 2.3 | .00 | 0 | -- | -- | -- | -- |
| JUN | | | | | | | |
| 07... | 1.6 | .00 | 0 | -- | -- | -- | -- |
| JUL | | | | | | | |
| 06... | 2.1 | .00 | 0 | 260 | -- | -- | -- |
| AUG | | | | | | | |
| 02... | 29 | .00 | 2 | -- | -- | -- | -- |
| 30... | 3.0 | .00 | 0 | -- | -- | -- | -- |
| SEP | | | | | | | |
| 27... | -- | .00 | 0 | -- | 6.61 | 6.06 | -- |

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

PHYTOPLANKTON

| | |
|---|---|
| DATE | JUL 6,78 |
| TIME | 1130 |
| TOTAL CELLS/ML | 260 |
| DIVERSITY: DIVISION | 1.0 |
| .CLASS | 1.0 |
| ..ORDER | 1.0 |
| ...FAMILY | 1.3 |
| ....GENUS | 1.3 |

| ORGANISM | CELLS /ML | PER-CENT |
|---|---|---|
| CHLOROPHYTA (GREEN ALGAE) | | |
| .CHLOROPHYCEAE | | |
| ..VOLVOCALES | | |
| ...VOLVOCACEAE | | |
| ....PANDORINA | 150# | 58 |
| CHRYSOPHYTA | | |
| .BACILLARIOPHYCEAE | | |
| ..PENNALES | | |
| ...ACHNANTHACEAE | | |
| ....COCCONEIS | 86# | 33 |
| ...NAVICULACEAE | | |
| ....NAVICULA | 22 | 8 |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

## 09498870 RYE CREEK NEAR GISELA, AZ

LOCATION.--Lat 34°01'57", long 111°17'26", in SW¼ sec.13, T.8 N., R.10 E., Gila County, Hydrologic Unit 15060105, in Tonto National Forest, on right bank, 0.5 mi (0.8 km) upstream from mouth, 0.8 mi (1.3 km) downstream from bridge on county road, and 4.8 mi (7.7 km) south of Gisela.

DRAINAGE AREA.--122 $mi^2$ (316 $km^2$).

PERIOD OF RECORD.--December 1965 to current year.

REVISED RECORDS.--WRD Ariz. 1969: 1967.

GAGE.--Water-stage recorder. Altitude of gage is 2,730 ft (832 m), from topographic map. Prior to Dec. 19, 1967, at datum 1.00 ft (0.305 m) higher.

REMARKS.--Records poor.

AVERAGE DISCHARGE.--12 years, 18.7 $ft^3/s$ (0.530 $m^3/s$), 13,550 acre-ft/yr (16.7 $hm^3/yr$); median of yearly mean discharges, 9.3 $ft^3/s$ (0.26 $m^3/s$), 6,700 acre-ft/yr (8.3 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 44,400 $ft^3/s$ (1,260 $m^3/s$) Sept. 5, 1970, gage height, 14.1 ft (4.30 m), in gage well, 18.7 ft (5.70 m), from profile past gage, from rating curve extended above 850 $ft^3/s$ (24 $m^3/s$) on basis of slope-area measurements at gage height 9.0 and 14.1 ft (2.74 and 4.30 m), present datum; minimum daily, 0.20 $ft^3/s$ (0.006 $m^3/s$) July 5, 6, 1970.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*) and peak discharges above base of 600 $ft^3/s$ (17 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|
| Mar. 1 | 0800 | 5,850 | 166 | 6.30 | 1.920 |
| Mar. 2 | 0900 | *8,220 | 233 | 6.60 | 2.012 |
| Mar. 5 | 2100 | 2,400 | 68.0 | 3.50 | 1.067 |

Minimum daily, 0.40 $ft^3/s$ (0.011 $m^3/s$) Jan. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1.2 | .75 | .70 | .75 | 223 | 2920 | 35 | 9.1 | 5.5 | 4.2 | 6.6 | 3.2 |
| 2 | 1.2 | .75 | .70 | .70 | 77 | 4780 | 35 | 10 | 5.5 | 4.0 | 11 | 3.2 |
| 3 | 1.2 | .75 | .70 | .75 | 38 | 3430 | 32 | 11 | 5.5 | 3.7 | 10 | 3.0 |
| 4 | 1.2 | .75 | .75 | .75 | 22 | 1220 | 26 | 10 | 5.8 | 3.7 | 6.6 | 3.4 |
| 5 | 1.2 | .75 | .60 | .70 | 12 | 1370 | 24 | 9.6 | 5.8 | 3.7 | 6.2 | 2.4 |
| 6 | 35 | .75 | .60 | .70 | 11 | 1320 | 21 | 9.6 | 5.5 | 4.0 | 28 | 2.2 |
| 7 | 1.8 | .75 | .60 | .60 | 12 | 714 | 19 | 9.1 | 5.5 | 4.0 | 43 | 2.0 |
| 8 | 1.2 | .67 | .60 | .60 | 18 | 420 | 17 | 8.2 | 5.5 | 4.0 | 7.8 | 2.0 |
| 9 | 1.0 | .67 | .60 | .60 | 25 | 275 | 18 | 8.6 | 5.5 | 4.0 | 6.9 | 2.2 |
| 10 | .94 | .67 | .60 | 1.5 | 53 | 220 | 17 | 8.2 | 5.1 | 4.2 | 6.6 | 2.2 |
| 11 | .94 | .67 | .60 | 4.0 | 348 | 182 | 17 | 7.3 | 5.1 | 5.8 | 6.2 | 2.2 |
| 12 | .94 | .67 | .70 | .96 | 169 | 202 | 18 | 6.9 | 4.8 | 4.0 | 58 | 2.0 |
| 13 | .94 | .67 | .70 | .75 | 100 | 193 | 17 | 6.2 | 5.1 | 4.2 | 8.6 | 2.0 |
| 14 | .94 | .67 | .70 | .75 | 178 | 171 | 17 | 6.6 | 5.1 | 4.2 | 5.5 | 18 |
| 15 | .94 | .59 | .70 | 223 | 98 | 158 | 15 | 7.3 | 4.2 | 4.2 | 5.1 | 2.4 |
| 16 | .94 | .59 | .70 | 119 | 75 | 134 | 14 | 6.2 | 4.0 | 4.2 | 4.8 | 2.2 |
| 17 | .94 | .60 | .70 | 423 | 63 | 112 | 13 | 6.2 | 4.2 | 4.0 | 4.8 | 2.0 |
| 18 | .84 | .60 | .70 | 283 | 50 | 98 | 13 | 6.2 | 4.2 | 3.4 | 4.5 | 2.0 |
| 19 | .84 | .60 | .70 | 122 | 42 | 88 | 13 | 6.2 | 4.2 | 3.7 | 4.5 | 2.0 |
| 20 | .84 | .70 | .60 | 83 | 38 | 81 | 13 | 6.2 | 4.5 | 3.4 | 4.2 | 2.0 |
| 21 | .84 | .70 | .70 | 41 | 42 | 72 | 13 | 6.2 | 4.5 | 3.2 | 4.2 | 2.0 |
| 22 | .84 | .70 | .70 | 11 | 48 | 146 | 12 | 5.8 | 4.5 | 3.2 | 4.5 | 2.0 |
| 23 | .84 | .70 | .70 | 4.5 | 50 | 114 | 9.6 | 5.5 | 4.5 | 3.4 | 4.0 | 1.7 |
| 24 | .75 | .75 | .70 | 2.4 | 49 | 83 | 8.6 | 5.5 | 4.5 | 4.0 | 4.0 | 1.8 |
| 25 | .75 | .70 | .70 | 1.7 | 43 | 66 | 8.6 | 5.8 | 4.2 | 3.7 | 4.0 | 5.4 |
| 26 | .75 | .70 | .70 | 1.4 | 41 | 55 | 8.2 | 5.8 | 4.0 | 60 | 3.7 | 2.0 |
| 27 | .75 | .70 | .70 | 1.2 | 37 | 50 | 7.8 | 5.5 | 4.0 | 29 | 3.7 | 1.8 |
| 28 | .75 | .70 | .84 | .80 | 1230 | 46 | 7.8 | 5.5 | 4.8 | 9.6 | 3.4 | 1.8 |
| 29 | .75 | .70 | .94 | .60 | --- | 41 | 7.8 | 5.1 | 4.8 | 8.2 | 3.4 | 2.0 |
| 30 | .75 | .70 | 1.2 | .40 | --- | 37 | 8.2 | 5.1 | 4.2 | 6.9 | 3.2 | 2.2 |
| 31 | .75 | --- | .84 | 212 | --- | 36 | --- | 5.5 | --- | 6.2 | 3.2 | --- |
| TOTAL | 63.56 | 20.67 | 21.97 | 1544.11 | 3192 | 18834 | 485.6 | 220.0 | 144.6 | 218.0 | 280.2 | 85.3 |
| MEAN | 2.05 | .69 | .71 | 49.8 | 114 | 608 | 16.2 | 7.10 | 4.82 | 7.03 | 9.04 | 2.84 |
| MAX | 35 | .75 | 1.2 | 423 | 1230 | 4780 | 35 | 11 | 5.8 | 60 | 58 | 18 |
| MIN | .75 | .59 | .60 | .40 | 11 | 36 | 7.8 | 5.1 | 4.0 | 3.2 | 3.2 | 1.7 |
| AC-FT | 126 | 41 | 44 | 3060 | 6330 | 37360 | 963 | 436 | 287 | 432 | 556 | 169 |

CAL YR 1977 TOTAL 744.60 MEAN 2.04 MAX 200 MIN .35 AC-FT 1480
WTR YR 1978 TOTAL 25110.01 MEAN 68.8 MAX 4780 MIN .40 AC-FT 49810

## 09499000 TONTO CREEK ABOVE GUN CREEK, NEAR ROOSEVELT, AZ

LOCATION.--Lat 33°58'48", long 111°18'10", in SW¼NE¼ sec.2, T.7 N., R.10 E., Gila County, Hydrologic Unit 15060105, in Tonto National Forest, on left bank 600 ft (183 m) upstream from Gun Creek, 17 mi (27 km) upstream from high-water line of Roosevelt Lake, and 24 mi (39 km) northwest of Roosevelt.

DRAINAGE AREA.--675 $mi^2$ (1,750 $km^2$).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1940 to current year.

REVISED RECORDS.--WSP 1283: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,523.14 ft (769.053 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair. Small diversions above station for irrigation.

AVERAGE DISCHARGE.--37 years (water years 1942-78), 123 $ft^3/s$ (3.483 $m^3/s$), 89,110 acre-ft/yr (110 $hm^3/yr$); median of yearly mean discharges, 83 $ft^3/s$ (2.35 $m^3/s$), 60,100 acre-ft/yr (74 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 53,000 $ft^3/s$ (1,500 $m^3/s$) Sept. 5, 1970, gage height, 18.2 ft (5.55 m), from rating curve extended above 27,000 $ft^3/s$ (765 $m^3/s$) on basis of slope-area measurement of peak flow; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*) and peak discharges above base of 1,700 $ft^3/s$ (48 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) | Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Jan. 15 | 1930 | 2,070 | 58.6 | 6.30 | 1.920 | Mar. 2 | 1030 | *45,800 | 1,300 | 16.50 | 5.029 |
| Jan. 17 | 1500 | 3,900 | 110 | 7.23 | 2.204 | Mar. 5 | 1730 | 21,400 | 606 | 10.30 | 3.139 |
| Feb. 1 | 0400 | 3,740 | 106 | 7.15 | 2.179 | Mar. 12 | 2400 | 4,410 | 125 | 6.20 | 1.890 |
| Feb. 11 | 0700 | 6,600 | 187 | 8.25 | 2.515 | Mar. 22 | 1600 | 6,760 | 191 | 6.90 | 2.103 |
| Feb. 15 | 0030 | 2,300 | 65.1 | 6.78 | 2.067 | Jul. 26 | 2100 | 2,810 | 79.6 | 6.70 | 2.042 |

Minimum daily, 5.5 $ft^3/s$ (0.156 $m^3/s$) Oct. 2-3, 25-26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 6.6 | 11 | 9.8 | 19 | 2370 | 28600 | 628 | 85 | 21 | 10 | 6.6 | 6.6 |
| 2 | 5.5 | 9.1 | 9.1 | 16 | 533 | 32200 | 595 | 100 | 21 | 11 | 7.7 | 6.6 |
| 3 | 5.5 | 8.4 | 9.8 | 15 | 212 | 20900 | 339 | 74 | 20 | 9.8 | 9.8 | 6.0 |
| 4 | 6.0 | 9.8 | 9.8 | 13 | 109 | 3280 | 284 | 65 | 19 | 9.8 | 9.1 | 18 |
| 5 | 5.5 | 8.4 | 9.8 | 12 | 67 | 7820 | 263 | 70 | 19 | 9.1 | 7.1 | 16 |
| 6 | 118 | 13 | 9.8 | 11 | 53 | 6090 | 239 | 65 | 20 | 8.4 | 14 | 27 |
| 7 | 59 | 15 | 9.1 | 9.8 | 89 | 2940 | 225 | 59 | 19 | 8.4 | 7.7 | 15 |
| 8 | 37 | 16 | 9.1 | 9.1 | 103 | 1830 | 230 | 57 | 16 | 9.8 | 16 | 13 |
| 9 | 19 | 14 | 9.1 | 9.1 | 100 | 1330 | 244 | 53 | 16 | 9.1 | 38 | 9.1 |
| 10 | 15 | 12 | 8.4 | 15 | 96 | 972 | 194 | 49 | 15 | 9.1 | 26 | 9.1 |
| 11 | 14 | 11 | 8.4 | 63 | 4170 | 868 | 190 | 47 | 14 | 9.8 | 100 | 7.7 |
| 12 | 12 | 9.1 | 9.8 | 47 | 2230 | 2080 | 199 | 45 | 13 | 11 | 70 | 7.1 |
| 13 | 11 | 10 | 10 | 31 | 1000 | 2770 | 199 | 45 | 13 | 11 | 49 | 6.6 |
| 14 | 10 | 10 | 10 | 23 | 1750 | 1830 | 178 | 44 | 13 | 13 | 32 | 82 |
| 15 | 9.1 | 10 | 11 | 860 | 1330 | 1260 | 155 | 38 | 13 | 10 | 26 | 30 |
| 16 | 8.4 | 10 | 10 | 900 | 940 | 612 | 141 | 35 | 11 | 35 | 22 | 15 |
| 17 | 8.4 | 9.1 | 9.8 | 1850 | 798 | 333 | 134 | 34 | 11 | 19 | 14 | 12 |
| 18 | 7.7 | 10 | 10 | 1570 | 556 | 284 | 124 | 34 | 10 | 16 | 10 | 11 |
| 19 | 7.7 | 10 | 10 | 824 | 419 | 279 | 112 | 32 | 10 | 13 | 9.8 | 9.8 |
| 20 | 7.7 | 10 | 10 | 840 | 394 | 316 | 103 | 30 | 9.1 | 9.8 | 9.1 | 7.7 |
| 21 | 7.7 | 10 | 9.8 | 540 | 351 | 289 | 97 | 23 | 9.1 | 8.4 | 8.4 | 7.7 |
| 22 | 6.6 | 9.8 | 9.1 | 375 | 433 | 2830 | 92 | 23 | 9.1 | 16 | 8.4 | 7.7 |
| 23 | 6.0 | 10 | 9.8 | 268 | 467 | 3140 | 84 | 22 | 8.4 | 18 | 8.4 | 8.4 |
| 24 | 6.0 | 10 | 9.8 | 212 | 446 | 1480 | 77 | 21 | 7.7 | 26 | 7.7 | 8.4 |
| 25 | 5.5 | 10 | 9.8 | 167 | 381 | 1120 | 69 | 20 | 7.7 | 16 | 7.1 | 59 |
| 26 | 5.5 | 9.8 | 9.8 | 134 | 328 | 789 | 65 | 21 | 7.7 | 160 | 7.1 | 18 |
| 27 | 6.0 | 9.8 | 9.8 | 124 | 279 | 742 | 61 | 22 | 7.7 | 78 | 6.6 | 12 |
| 28 | 7.1 | 9.8 | 11 | 115 | 8560 | 620 | 55 | 21 | 11 | 30 | 6.0 | 10 |
| 29 | 9.1 | 10 | 16 | 109 | --- | 510 | 55 | 20 | 13 | 16 | 6.0 | 9.1 |
| 30 | 10 | 10 | 20 | 115 | --- | 406 | 53 | 20 | 12 | 13 | 6.6 | 8.4 |
| 31 | 11 | --- | 21 | 1650 | --- | 413 | --- | 19 | --- | 9.8 | 6.0 | --- |
| TOTAL | 453.6 | 315.1 | 328.7 | 10946.0 | 28564 | 128933 | 5484 | 1293 | 396.5 | 633.3 | 562.2 | 464.0 |
| MEAN | 14.6 | 10.5 | 10.6 | 353 | 1020 | 4159 | 183 | 41.7 | 13.2 | 20.4 | 18.1 | 15.5 |
| MAX | 118 | 16 | 21 | 1850 | 8560 | 32200 | 628 | 100 | 21 | 160 | 100 | 82 |
| MIN | 5.5 | 8.4 | 8.4 | 9.1 | 53 | 279 | 53 | 19 | 7.7 | 8.4 | 6.0 | 6.0 |
| AC-FT | 900 | 625 | 652 | 21710 | 56660 | 255700 | 10880 | 2560 | 786 | 1260 | 1120 | 920 |

CAL YR 1977 TOTAL 7496.00 MEAN 20.5 MAX 232 MIN .00 AC-FT 14870
WTR YR 1978 TOTAL 178373.40 MEAN 489 MAX 32200 MIN 5.5 AC-FT 353800

09499000 TONTO CREEK ABOVE GUN CREEK NEAR ROOSEVELT, AZ--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--January 1976 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | TUR-BID-ITY (JTU) | TUR-BID-ITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) | COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 27... | 1530 | 9.1 | 610 | 8.1 | 19.5 | 2 | -- | 10.4 | K22 |
| NOV | | | | | | | | | |
| 29... | 1445 | 10 | 660 | 8.1 | 12.5 | -- | -- | 10.4 | K17 |
| DEC | | | | | | | | | |
| 29... | 1445 | 16 | 620 | 7.5 | 14.0 | 15 | -- | 11.2 | 440 |
| JAN | | | | | | | | | |
| 25... | 1500 | 170 | 300 | 8.1 | 8.5 | 6 | -- | 11.6 | K20 |
| MAR | | | | | | | | | |
| 09... | 1630 | 1270 | 205 | 7.7 | 13.0 | 35 | -- | -- | K4 |
| APR | | | | | | | | | |
| 10... | 1545 | 196 | 266 | 8.0 | 18.4 | 1 | -- | 8.4 | K4 |
| MAY | | | | | | | | | |
| 03... | 1530 | 74 | 355 | 8.4 | 22.1 | 1 | -- | 7.8 | K22 |
| JUN | | | | | | | | | |
| 07... | 1530 | 21 | 455 | 8.0 | 28.0 | 0 | -- | 7.7 | K4 |
| JUL | | | | | | | | | |
| 06... | 1745 | 8.4 | 420 | 8.5 | 25.0 | -- | .50 | 8.0 | K1 |
| AUG | | | | | | | | | |
| 02... | 1600 | 11 | 495 | 8.1 | 31.0 | 30 | -- | 5.8 | K1000 |
| 30... | 1500 | 7.7 | 470 | 8.2 | 30.0 | 3 | -- | 8.2 | K2 |
| SEP | | | | | | | | | |
| 27... | 0900 | 1.1 | 550 | 8.3 | 20.0 | -- | 8.0 | 8.3 | E3600 |

| DATE | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | BICAR-BONATE (MG/L AS HCO3) | CAR-BONATE (MG/L AS CO3) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 27... | 190 | 35 | 50 | 16 | 50 | 1.6 | 2.2 | 190 | 0 |
| NOV | | | | | | | | | |
| 29... | 220 | 45 | 59 | 17 | 52 | 1.5 | 2.4 | 210 | 0 |
| DEC | | | | | | | | | |
| 29... | 210 | 54 | 56 | 16 | 49 | 1.5 | 2.3 | 190 | 0 |
| JAN | | | | | | | | | |
| 25... | 130 | 30 | 37 | 8.8 | 19 | .7 | 1.4 | 120 | 0 |
| MAR | | | | | | | | | |
| 09... | 110 | 16 | 31 | 6.9 | 6.5 | .3 | 1.6 | 110 | 0 |
| APR | | | | | | | | | |
| 10... | 130 | 20 | 37 | 8.3 | 11 | .4 | 1.2 | 130 | 0 |
| MAY | | | | | | | | | |
| 03... | 140 | 4 | 42 | 9.4 | 18 | .7 | 1.6 | 170 | 0 |
| JUN | | | | | | | | | |
| 07... | 170 | 22 | 48 | 12 | 31 | 1.0 | 2.1 | 180 | 0 |
| JUL | | | | | | | | | |
| 06... | 150 | 31 | 40 | 12 | 36 | 1.3 | 2.3 | 130 | 7 |
| AUG | | | | | | | | | |
| 02... | 160 | 17 | 46 | 12 | 38 | 1.3 | 2.6 | 180 | 0 |
| 30... | 160 | 24 | 44 | 13 | 40 | 1.4 | 2.5 | 170 | 0 |
| SEP | | | | | | | | | |
| 27... | 190 | 28 | 54 | 14 | 43 | 1.3 | 2.5 | 200 | 0 |

K Based on non-ideal colony count.
E Estimated.

09499000 TONTO CREEK ABOVE GUN CREEK NEAR ROOSEVELT, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | SULFATE DIS- SOLVED (MG/L AS SO4) | CHLO- RIDE, DIS- SOLVED (MG/L AS CL) | FLUO- RIDE, DIS- SOLVED (MG/L AS F) | SILICA, DIS- SOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) | SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) | SOLIDS, DIS- SOLVED (TONS PER AC-FT) | NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 27... | 11 | 87 | .5 | 13 | 319 | 324 | .43 | .01 |
| NOV | | | | | | | | |
| 29... | 14 | 92 | .5 | 14 | -- | 355 | .48 | .00 |
| DEC | | | | | | | | |
| 29... | 17 | 87 | .7 | 12 | 322 | 334 | .44 | .08 |
| JAN | | | | | | | | |
| 25... | 16 | 51 | .5 | 15 | 183 | 189 | .25 | .23 |
| MAR | | | | | | | | |
| 09... | 16 | 6.7 | .2 | 13 | 138 | 137 | .19 | .27 |
| APR | | | | | | | | |
| 10... | 16 | 13 | .2 | 11 | 150 | 162 | .20 | .10 |
| MAY | | | | | | | | |
| 03... | 17 | 25 | .3 | 12 | 198 | 210 | .27 | .11 |
| JUN | | | | | | | | |
| 07... | 19 | 54 | .4 | 13 | 264 | 268 | .36 | .02 |
| JUL | | | | | | | | |
| 06... | 19 | 63 | .5 | 9.0 | 229 | 253 | .31 | .03 |
| AUG | | | | | | | | |
| 02... | 11 | 58 | .3 | 17 | 277 | 274 | .38 | .02 |
| 30... | 15 | 62 | .4 | 16 | 276 | 277 | .38 | .01 |
| SEP | | | | | | | | |
| 27... | 16 | 76 | .5 | 14 | 318 | 319 | .43 | .01 |

| DATE | NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) | NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | PHOS- PHORUS, TOTAL (MG/L AS P) | PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P) |
|---|---|---|---|---|---|---|---|
| OCT | | | | | | | |
| 27... | .01 | .01 | -- | .05 | .06 | .00 | .00 |
| NOV | | | | | | | |
| 29... | .05 | .00 | -- | .09 | .14 | .00 | .01 |
| DEC | | | | | | | |
| 29... | .22 | .08 | .24 | -- | .46 | .00 | .00 |
| JAN | | | | | | | |
| 25... | .29 | .23 | -- | .11 | .40 | .04 | .03 |
| MAR | | | | | | | |
| 09... | .09 | .27 | -- | .28 | .37 | .06 | .02 |
| APR | | | | | | | |
| 10... | .08 | .10 | -- | .21 | .29 | .00 | .01 |
| MAY | | | | | | | |
| 03... | .07 | .11 | -- | .17 | .24 | .00 | .01 |
| JUN | | | | | | | |
| 07... | .02 | .02 | -- | .25 | .27 | .02 | .03 |
| JUL | | | | | | | |
| 06... | .02 | .03 | -- | .19 | .21 | .00 | .00 |
| AUG | | | | | | | |
| 02... | .02 | .02 | -- | .64 | .66 | .06 | .01 |
| 30... | .02 | .01 | -- | .13 | .15 | .02 | .02 |
| SEP | | | | | | | |
| 27... | .01 | .01 | -- | .20 | .21 | .04 | .01 |

09499000 TONTO CREEK ABOVE GUN CREEK NEAR ROOSEVELT, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) | BORON, TOTAL RECOV-ERABLE (UG/L AS B) | BORON, DIS-SOLVED (UG/L AS B) | CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) | IRON, TOTAL RECOV-ERABLE (UG/L AS FE) | IRON, DIS-SOLVED (UG/L AS FE) | LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | |
| 27... | 5 | 100 | 160 | 80 | 10 | 5 | <10 | 140 | 20 | <100 |
| NOV | | | | | | | | | | |
| 29... | 4 | 300 | 130 | 90 | 2 | 0 | 2 | 70 | 20 | 16 |
| DEC | | | | | | | | | | |
| 29... | 3 | 100 | 210 | 80 | 2 | 10 | 7 | 620 | 10 | 12 |
| JAN | | | | | | | | | | |
| 25... | 2 | 100 | 80 | 30 | 5 | 10 | 7 | 370 | 10 | 9 |
| MAR | | | | | | | | | | |
| 09... | 3 | 100 | 140 | 40 | 3 | 10 | 120 | 6300 | 20 | 300 |
| APR | | | | | | | | | | |
| 10... | 3 | 100 | 80 | 30 | 2 | 0 | 7 | 110 | 20 | 14 |
| MAY | | | | | | | | | | |
| 03... | 3 | 0 | 100 | 20 | 2 | 0 | 4 | 40 | 0 | 14 |
| JUN | | | | | | | | | | |
| 07... | 4 | 200 | 200 | 50 | 1 | 0 | 5 | 0 | 0 | 12 |
| JUL | | | | | | | | | | |
| 06... | 1 | 300 | 120 | 70 | 7 | 0 | 8 | 100 | 50 | 16 |
| AUG | | | | | | | | | | |
| 02... | 7 | 300 | 140 | 80 | 1 | 10 | 7 | 1100 | <10 | 5 |
| 30... | 6 | 200 | 120 | 80 | 0 | 0 | 6 | 180 | 50 | 3 |
| SEP | | | | | | | | | | |
| 27... | 5 | 0 | 150 | 90 | 1 | 0 | 5 | 870 | 10 | 11 |

| DATE | MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) | MANGA-NESE, DIS-SOLVED (UG/L AS MN) | MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) | SELE-NIUM, TOTAL (UG/L AS SE) | SILVER, TOTAL RECOV-ERABLE (UG/L AS AG) | ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) | CARBON, ORGANIC TOTAL (MG/L AS C) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS (UG/L) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 27... | 30 | 20 | .0 | 0 | <10 | 40 | 1.3 | .00 | 1 |
| NOV | | | | | | | | | |
| 29... | 20 | 20 | .0 | 0 | 0 | 0 | 1.4 | .00 | 3 |
| DEC | | | | | | | | | |
| 29... | 50 | 50 | .0 | 0 | 0 | 10 | 2.4 | .00 | 0 |
| JAN | | | | | | | | | |
| 25... | 20 | 10 | .0 | 0 | 1 | 30 | 3.7 | .00 | 4 |
| MAR | | | | | | | | | |
| 09... | 130 | 0 | .0 | 0 | 1 | 80 | 5.8 | .00 | 1 |
| APR | | | | | | | | | |
| 10... | 0 | 0 | .0 | 0 | 0 | 10 | 2.4 | .00 | 2 |
| MAY | | | | | | | | | |
| 03... | 0 | 0 | .0 | 0 | 0 | 10 | 1.6 | .00 | 0 |
| JUN | | | | | | | | | |
| 07... | 0 | 0 | .0 | 0 | 0 | 10 | .9 | .00 | 0 |
| JUL | | | | | | | | | |
| 06... | 10 | 10 | .0 | 0 | 0 | 10 | 2.3 | .00 | 0 |
| AUG | | | | | | | | | |
| 02... | 70 | 20 | .1 | 0 | 0 | 20 | 2.7 | .00 | 2 |
| 30... | 30 | 10 | .0 | 0 | 0 | 10 | 2.2 | .00 | 1 |
| SEP | | | | | | | | | |
| 27... | 40 | 10 | .0 | 0 | 0 | 20 | -- | .00 | 1 |

< Actual value is known to be less than value shown.

09499000 TONTO CREEK ABOVE GUN CREEK NEAR ROOSEVELT, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | CARBON, ORGANIC TOTAL (MG/L AS C) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS (UG/L) | PHYTO-PLANK-TON, TOTAL (CELLS PER ML) | PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M | PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M |
|---|---|---|---|---|---|---|
| OCT | | | | | | |
| 27... | 1.3 | .00 | 1 | -- | -- | -- |
| NOV | | | | | | |
| 29... | 1.4 | .00 | 3 | -- | -- | -- |
| DEC | | | | | | |
| 29... | 2.4 | .00 | 0 | -- | -- | -- |
| JAN | | | | | | |
| 25... | 3.7 | .00 | 4 | -- | -- | -- |
| MAR | | | | | | |
| 09... | 5.8 | .00 | 1 | -- | -- | -- |
| APR | | | | | | |
| 10... | 2.4 | .00 | 2 | -- | -- | -- |
| MAY | | | | | | |
| 03... | 1.6 | .00 | 0 | -- | -- | -- |
| JUN | | | | | | |
| 07... | .9 | .00 | 0 | -- | -- | -- |
| JUL | | | | | | |
| 06... | 2.3 | .00 | 0 | 3400 | -- | -- |
| AUG | | | | | | |
| 02... | 2.7 | .00 | 2 | -- | 7.17 | 6.22 |
| 30... | 2.2 | .00 | 1 | -- | -- | -- |
| SEP | | | | | | |
| 27... | -- | .00 | 1 | -- | -- | -- |

09499000 TONTO CREEK ABOVE GUN CREEK NEAR ROOSEVELT, AZ--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

PHYTOPLANKTON

| | |
|---|---|
| DATE | JUL 6,78 |
| TIME | 1745 |
| TOTAL CELLS/ML | 3400 |
| DIVERSITY: DIVISION | 1.2 |
| .CLASS | 1.2 |
| ..ORDER | 1.2 |
| ...FAMILY | 1.8 |
| ....GENUS | 2.0 |

| ORGANISM | CELLS /ML | PER-CENT |
|---|---|---|
| CHLOROPHYTA (GREEN ALGAE) | | |
| .CHLOROPHYCEAE | | |
| ..CHLOROCOCCALES | | |
| ...SCENEDESMACEAE | | |
| ....SCENEDESMUS | 190 | 6 |
| ..VOLVOCALES | | |
| ...CHLAMYDOMONADACEAE | | |
| ....CHLAMYDOMONAS | 24 | 1 |
| CHRYSOPHYTA | | |
| .BACILLARIOPHYCEAE | | |
| ..PENNALES | | |
| ...ACHNANTHACEAE | | |
| ....ACHNANTHES | 24 | 1 |
| ...CYMBELLACEAE | | |
| ....CYMBELLA | 140 | 4 |
| ....EPITHEMIA | 1900# | 54 |
| ...DIATOMACEAE | | |
| ....DIATOMA | 48 | 1 |
| ...FRAGILARIACEAE | | |
| ....SYNEDRA | 72 | 2 |
| ...GOMPHONEMATACEAE | | |
| ....GOMPHONEMA | 24 | 1 |
| ...NAVICULACEAE | | |
| ....NAVICULA | 170 | 5 |
| CYANOPHYTA (BLUE-GREEN ALGAE) | | |
| .CYANOPHYCEAE | | |
| ..HORMOGONALES | | |
| ...OSCILLATORIACEAE | | |
| ....OSCILLATORIA | 840# | 25 |
| EUGLENOPHYTA (EUGLENOIDS) | | |
| .EUGLENOPHYCEAE | | |
| ..EUGLENALES | | |
| ...EUGLENACEAE | | |
| ....TRACHELOMONAS | 24 | 1 |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

## 09501000 RESERVOIR SYSTEM ON SALT RIVER AT AND BELOW ROOSEVELT DAM, AZ

LOCATION.--This system comprises four storage reservoirs created by four separate dams on Salt River, Hydrologic Unit 15060106: Roosevelt Lake, formed by Roosevelt Dam in sec.20, T.4 N., R.12 E. (unsurveyed), on State Highway 88; Apache Lake, formed by Horse Mesa Dam, 17 mi (27 km) downstream from Roosevelt Dam; Canyon Lake, formed by Mormon Flat Dam, 27 mi (43 km) downstream from Roosevelt Dam; Saguaro Lake, formed by Stewart Mountain Dam, 37 mi (60 km) downstream from Roosevelt Dam. Contents given herein are combined contents of the four reservoirs.

DRAINAGE AREA.--6,211 mi$^2$ (16,086 km$^2$), at Stewart Mountain Dam.

PERIOD OF RECORD.--April 1910 to current year. Prior to October 1934, monthend contents only, published in WSP 1313. Evaporation: April 1958 to June 1963.

REVISED RECORDS.--WSP 1283: Drainage area. WRD Ariz. 1975: 1974.

GAGES.--Roosevelt Lake, water-stage indicator in powerplant connected to long distance transmitter on lake (water-stage recorder prior to Jan. 1, 1967); Apache Lake, water-stage indicator in powerplant connected to long distance transmitter on lake since April 1949 (prior to that date, nonrecording gage or reference mark); Canyon and Saguaro Lakes, mercury column gages.

REMARKS.--Total capacity of the four reservoirs is 1,755,000 acre-ft (2,160 hm$^3$), divided as follows: Roosevelt Lake, 1,382,000 acre-ft (1,700 hm$^3$); Apache Lake, 245,000 acre-ft (302 hm$^3$); Canyon Lake, 58,000 acre-ft (71.5 hm$^3$); Saguaro Lake, 70,000 acre-ft (86.3 hm$^3$). Dead storage negligible. Dams forming these reservoirs were built as follows: Roosevelt 1905-11; Horse Mesa 1924-27; Mormon Flat 1923-26; Stewart Mountain 1928-30. The four dams forming these reservoirs completely develop the fall in the Salt River from Roosevelt Lake to Stewart Mountain Dam. Elevation of water surface varies from 1,422.0 ft (433.43 m), sill of lowest outlet in Stewart Mountain Dam, to 2,136 ft (651.1 m), top of spillway gates in raised position on Roosevelt Dam. Since 1910, spill over Roosevelt Dam because of capacity or near capacity storage has occurred only during the following periods: Apr. 15 to June 21, 1915, Jan. 19 to May 30, 1916, Apr. 21 to June 7, 1917, Feb. 17 to June 3, 1920, Apr. 13 to July 24, 1941, Dec. 30, 1965, to Jan. 10, 1966, Feb. 16 to Apr. 26, 1968, and Mar. 18 to Apr. 24, Apr. 27 to May 1, May 3, 6, 8-11, 16-19, 21-24, 28, 1973; during each period a considerable amount of water was uncontrolled or released down the Salt River channel past the Stewart Mountain damsite and could not be diverted for irrigation. Records given herein represent usable contents. Water from this system is used for irrigation of Salt River Valley and for generation of power.

COOPERATION.--Records of daily contents furnished by Salt River Valley Water Users' Association.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents of system, 1,764,000 acre-ft (2,180 hm$^3$) May 22, 1941; minimum, 20,680 acre-ft (25.5 hm$^3$) Sept. 16, 1940.

EXTREMES FOR CURRENT YEAR.--Maximum contents of system, 1,691,000 acre-ft (2,090 hm$^3$) May 2, 3; minimum, 439,700 acre-ft (542 hm$^3$) Oct. 28.

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
INSTANTANEOUS OBSERVATIONS AT 0800

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 451900 | 442500 | 449900 | 461000 | 497400 | 701600 | 1594000 | 1686000 | 1656000 | 1568000 | 1476000 | 1394000 |
| 2 | 450500 | 442000 | 450300 | 460900 | 512800 | 923400 | 1604000 | 1691000 | 1653000 | 1565000 | 1472000 | 1391000 |
| 3 | 449900 | 441900 | 450600 | 461700 | 524500 | 1133000 | 1612000 | 1691000 | 1649000 | 1562000 | 1472000 | 1387000 |
| 4 | 448900 | 442500 | 451200 | 461700 | 526600 | 1234000 | 1621000 | 1690000 | 1647000 | 1559000 | 1473000 | 1384000 |
| 5 | 448600 | 443000 | 451400 | 461900 | 529300 | 1266000 | 1629000 | 1689000 | 1644000 | 1555000 | 1470000 | 1380000 |
| 6 | 448300 | 443000 | 451300 | 462100 | 531000 | 1307000 | 1636000 | 1689000 | 1643000 | 1553000 | 1468000 | 1378000 |
| 7 | 447700 | 441600 | 451800 | 462400 | 532900 | 1336000 | 1642000 | 1687000 | 1640000 | 1550000 | 1466000 | 1375000 |
| 8 | 448000 | 443800 | 452300 | 463300 | 535100 | 1357000 | 1648000 | 1686000 | 1637000 | 1546000 | 1466000 | 1372000 |
| 9 | 447900 | 444400 | 452400 | 465600 | 537900 | 1371000 | 1653000 | 1687000 | 1634000 | 1542000 | 1461000 | 1368000 |
| 10 | 448200 | 445400 | 452600 | 466000 | 541200 | 1381000 | 1658000 | 1686000 | 1633000 | 1541000 | 1459000 | 1365000 |
| 11 | 448200 | 444600 | 453300 | 466700 | 551700 | 1390000 | 1662000 | 1685000 | 1629000 | 1536000 | 1456000 | 1362000 |
| 12 | 447900 | 444800 | 453100 | 465200 | 567100 | 1400000 | 1666000 | 1685000 | 1626000 | 1533000 | 1454000 | 1358000 |
| 13 | 447100 | 445700 | 451900 | 467700 | 579400 | 1416000 | 1669000 | 1683000 | 1624000 | 1430000 | 1449000 | 1355000 |
| 14 | 446000 | 445800 | 452200 | 465700 | 569700 | 1433000 | 1673000 | 1683000 | 1622000 | 1527000 | 1448000 | 1351000 |
| 15 | 446100 | 445800 | 452600 | 468800 | 599300 | 1446000 | 1675000 | 1682000 | 1617000 | 1525000 | 1446000 | 1348000 |
| 16 | 445600 | 446200 | 453700 | 466500 | 612500 | 1455000 | 1678000 | 1681000 | 1613000 | 1521000 | 1443000 | 1345000 |
| 17 | 445100 | 446300 | 454600 | 470200 | 610400 | 1464000 | 1661000 | 1680000 | 1610000 | 1519000 | 1440000 | 1342000 |
| 18 | 444300 | 446600 | 454600 | 475900 | 616200 | 1466000 | 1663000 | 1678000 | 1608000 | 1515000 | 1437000 | 1339000 |
| 19 | 443200 | 446700 | 455100 | 481700 | 619100 | 1473000 | 1684000 | 1676000 | 1605000 | 1512000 | 1434000 | 1337000 |
| 20 | 443300 | 446900 | 456600 | 481800 | 620200 | 1479000 | 1665000 | 1676000 | 1602000 | 1509000 | 1430000 | 1334000 |
| 21 | 442400 | 447300 | 455800 | 482100 | 622900 | 1485000 | 1686000 | 1675000 | 1599000 | 1506000 | 1427000 | 1331000 |
| 22 | 441600 | 449200 | 459000 | 483000 | 625300 | 1494000 | 1666000 | 1674000 | 1596000 | 1502000 | 1425000 | 1328000 |
| 23 | 441500 | 448100 | 458900 | 487700 | 627600 | 1505000 | 1686000 | 1672000 | 1593000 | 1501000 | 1422000 | 1326000 |
| 24 | 440900 | 446300 | 457500 | 485100 | 629700 | 1519000 | 1666000 | 1670000 | 1590000 | 1496000 | 1419000 | 1324000 |
| 25 | 440400 | 446700 | 457800 | 486000 | 633100 | 1531000 | 1688000 | 1668000 | 1587000 | 1496000 | 1415000 | 1322000 |
| 26 | 440500 | 449000 | 460000 | 486500 | 637900 | 1541000 | 1687000 | 1668000 | 1564000 | 1492000 | 1413000 | 1320000 |
| 27 | 439800 | 449100 | 460100 | 486700 | 640900 | 1551000 | 1667000 | 1666000 | 1561000 | 1490000 | 1410000 | 1318000 |
| 28 | 439700 | 449200 | 460600 | 487900 | 645500 | 1560000 | 1687000 | 1664000 | 1576000 | 1489000 | 1407000 | 1315000 |
| 29 | 440400 | 449400 | 460800 | 486600 | --- | 1569000 | 1688000 | 1663000 | 1574000 | 1484000 | 1402000 | 1313000 |
| 30 | 440900 | 449500 | 462300 | 489700 | --- | 1578000 | 1668000 | 1661000 | 1571000 | 1482000 | 1400000 | 1311000 |
| 31 | 441200 | --- | 460500 | 490500 | --- | 1586000 | --- | 1656000 | --- | 1479000 | 1397000 | --- |
| MAX | 451900 | 449500 | 462300 | 490500 | 645500 | 1586000 | 1668000 | 1691000 | 1656000 | 1568000 | 1476000 | 1394000 |
| MIN | 439700 | 441600 | 449900 | 460900 | 497400 | 701600 | 1594000 | 1658000 | 1571000 | 1430000 | 1397000 | 1311000 |
| (†) | -9400 | +7400 | +11100 | +36400 | +204200 | +892400 | +94000 | -32000 | -88000 | -92000 | -82000 | -84000 |

CAL YR 1977 MAX 951700 MIN 439700 † -464200
WTR YR 1978 MAX 1691000 MIN 439700 † +858100

* Prior to Oct. 1, 1972, contents were given at 2400.
† Change in contents, in acre-feet (from 0800 first of month).
NOTE.--Contents at 0800 Oct. 1, 1978, 1,310,000 acre-feet.

## 09502000 SALT RIVER BELOW STEWART MOUNTAIN DAM, AZ
(National stream-quality accounting network station)

LOCATION.--Lat 33°33'10", long 111°34'33", in NW¼NW¼ sec.6, T.2 N., R.8 E. (unsurveyed), Maricopa County, Hydrologic Unit 15060106, on left bank 3.5 mi (5.6 km) downstream from Stewart Mountain Dam and 6 mi (10 km) upstream from Verde River.

DRAINAGE AREA.--6,232 $mi^2$ (16,141 $km^2$) of which 21 $mi^2$ (54 $km^2$) is below Stewart Mountain Dam.

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1930 to current year. Monthly discharge only for some periods, published in WSP 1313. Published as "at Stewart Mountain Dam" 1934-41.

REVISED RECORDS.--WSP 1343: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 1,370 ft (418 m), from topographic map. Prior to Sept. 27, 1934, at site 3.2 mi (5.1 km) upstream at different datum. Sept. 27, 1934, to Jan. 20, 1950, at site 2.8 mi (4.5 km) upstream at datum 1,396.33 ft (425.601 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Flow regulated by four reservoirs above station. (See elsewhere in this report.) Entire flow (except during infrequent periods of extreme flooding) is diverted at Granite Reef Dam, 10 mi (16 km) downstream, for irrigation in Salt River Valley and for municipal use by the city of Phoenix.

AVERAGE DISCHARGE.--48 years, 831 $ft^3/s$ (23.53 $m^3/s$), 602,000 acre-ft/yr (742 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 51,600 $ft^3/s$ (1,460 $m^3/s$) Jan. 1, 1966, gage height, 22.4 ft (6.83 m), from floodmarks; maximum daily discharge, 38,600 $ft^3/s$ (1,090 $m^3/s$) Jan. 1, 1966; no flow at times in recent years.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 490 | 9.0 | .80 | .00 | .00 | 1290 | 550 | 1350 | 1710 | 1630 | 1620 | 1750 |
| 2 | 484 | 6.0 | .80 | .00 | .00 | 16100 | 412 | 1300 | 1700 | 1650 | 1690 | 1720 |
| 3 | 504 | 4.8 | .70 | .00 | .00 | 8460 | 412 | 1310 | 1670 | 1700 | 1670 | 1720 |
| 4 | 531 | 4.0 | .66 | .00 | .00 | 2300 | 266 | 1410 | 1710 | 1670 | 1590 | 1760 |
| 5 | 587 | 3.3 | .70 | .00 | .00 | 54 | 9.6 | 1500 | 1720 | 1670 | 1510 | 1740 |
| 6 | 615 | 4.0 | .70 | .00 | .00 | 20 | 94 | 1540 | 1680 | 1670 | 1500 | 1750 |
| 7 | 541 | 3.7 | .70 | .00 | .00 | 12 | 918 | 1560 | 1730 | 1650 | 1550 | 1770 |
| 8 | 490 | 2.7 | .70 | .00 | .00 | 7.7 | 1070 | 1440 | 1750 | 1680 | 1690 | 1790 |
| 9 | 413 | 2.3 | .70 | .00 | .00 | 5.3 | 960 | 1410 | 1770 | 1660 | 1720 | 1780 |
| 10 | 365 | 2.0 | .67 | .00 | .00 | 4.2 | 732 | 1510 | 1780 | 1620 | 1750 | 1790 |
| 11 | 443 | 1.7 | .67 | .00 | 2.9 | 3.4 | 555 | 1550 | 1690 | 1660 | 1660 | 1800 |
| 12 | 519 | 1.5 | .60 | .00 | 1.6 | 4.6 | 520 | 1530 | 1620 | 1700 | 1680 | 1780 |
| 13 | 600 | 1.3 | .60 | .00 | 1.6 | 3.8 | 710 | 1420 | 1710 | 1760 | 1690 | 1770 |
| 14 | 590 | 1.1 | .60 | .00 | 10 | 3.0 | 960 | 1380 | 2060 | 1710 | 1690 | 1770 |
| 15 | 428 | .97 | .60 | .00 | 3.6 | 2.6 | 1010 | 1410 | 1760 | 1710 | 1690 | 1690 |
| 16 | 484 | .93 | .60 | .00 | 2.6 | 2.4 | 1190 | 1580 | 1750 | 1740 | 1700 | 1590 |
| 17 | 472 | .87 | .70 | .00 | 2.1 | 2.2 | 1320 | 1640 | 1760 | 1740 | 1720 | 1490 |
| 18 | 508 | .80 | .70 | .00 | 1.8 | 173 | 1750 | 1600 | 1770 | 1740 | 1710 | 1450 |
| 19 | 503 | .77 | .70 | .00 | 1.5 | 216 | 1770 | 1600 | 1740 | 1710 | 1690 | 1440 |
| 20 | 497 | .77 | .70 | .00 | .90 | 218 | 1740 | 1590 | 1730 | 1740 | 1640 | 1450 |
| 21 | 471 | .80 | .50 | .00 | .70 | 218 | 1740 | 1390 | 1730 | 1730 | 1540 | 1440 |
| 22 | 383 | .80 | .00 | .00 | .40 | 357 | 1730 | 1350 | 1720 | 1700 | 1690 | 1390 |
| 23 | 380 | .80 | .00 | .00 | .00 | 24 | 1700 | 1500 | 1730 | 1710 | 1710 | 1300 |
| 24 | 383 | .80 | .00 | .00 | .00 | 6.8 | 1640 | 1640 | 1700 | 1720 | 1780 | 1240 |
| 25 | 380 | .80 | .00 | .00 | .00 | 4.0 | 1710 | 1650 | 1680 | 1690 | 1760 | 1230 |
| 26 | 384 | .80 | .00 | .00 | .00 | 2.5 | 1710 | 1640 | 1600 | 1660 | 1740 | 1270 |
| 27 | 291 | .80 | .00 | .00 | .00 | 2.0 | 1690 | 1670 | 1630 | 1620 | 1750 | 1250 |
| 28 | 52 | .80 | .00 | .00 | .00 | 1.6 | 1660 | 1540 | 1600 | 1760 | 1740 | 1260 |
| 29 | 41 | .80 | .00 | .00 | --- | 1.3 | 1550 | 1610 | 1590 | 1730 | 1720 | 1360 |
| 30 | 34 | .80 | .00 | .00 | --- | 62 | 1360 | 1700 | 1620 | 1710 | 1770 | 1330 |
| 31 | 24 | --- | .00 | .00 | --- | 822 | --- | 1720 | --- | 1670 | 1740 | --- |
| TOTAL | 12887 | 60.51 | 14.10 | .00 | 29.70 | 30383.4 | 33438.6 | 47040 | 51410 | 52510 | 52100 | 46870 |
| MEAN | 416 | 2.02 | .45 | .000 | 1.06 | 980 | 1115 | 1517 | 1714 | 1694 | 1681 | 1562 |
| MAX | 615 | 9.0 | .80 | .00 | 10 | 16100 | 1770 | 1720 | 2060 | 1760 | 1780 | 1800 |
| MIN | 24 | .77 | .00 | .00 | .00 | 1.3 | 9.6 | 1300 | 1590 | 1620 | 1500 | 1230 |
| AC-FT | 25560 | 120 | 28 | .00 | 59 | 60270 | 66330 | 93300 | 102000 | 104200 | 103300 | 92970 |

CAL YR 1977 TOTAL 314992.61 MEAN 863 MAX 2420 MIN .00 AC-FT 624800
WTR YR 1978 TOTAL 326743.31 MEAN 895 MAX 16100 MIN .00 AC-FT 648100

09502000 SALT RIVER BELOW STEWART MOUNTAIN DAM, AZ--Continued

WATER-QUALITY RECORDS

LOCATION.--Water samples collected at Stewart Mountain Dam, 3.5 mi (5.6 km) upstream from gaging station.

PERIOD OF RECORD.--December 1950 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1964 to current year.
WATER TEMPERATURES: December 1950 to current year.

REMARKS.--No inflow between sampling point and gaging station except during infrequent periods of heavy local rains. Unpublished daily specific conductance measurements for period December 1950 to September 1964, available from district office in Tucson, Ariz.

No flow at sampling point during all or part of October, November, December, January, February, and March.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,490 micromhos Aug. 20, 1951; minimum daily, 615 micromhos on several days during April 1974.
WATER TEMPERATURES: Maximum, 29.0°C Aug. 24, 26, 27, 1951, Sept. 11, 12, 1969; minimum, 9.5°C Feb. 14, 1951.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,500 micromhos June 3, 6; minimum daily, 705 micromhos Sept. 26.
WATER TEMPERATURES: Maximum, 24.0°C Oct. 3, 4, 7, Sept. 5, 6; minimum, 10.0°C Mar. 22, 31.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | TUR-BID-ITY (JTU) | TUR-BID-ITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) | COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 28... | 1215 | 51 | 1580 | 7.7 | 23.5 | 3 | -- | 4.7 | K6 |
| APR | | | | | | | | | |
| 07... | 0930 | 882 | 1180 | 7.5 | 14.0 | 6 | -- | 6.1 | <1 |
| MAY | | | | | | | | | |
| 02... | 1445 | 1310 | 1260 | 7.1 | 16.0 | 3 | -- | 5.9 | <1 |
| JUN | | | | | | | | | |
| 06... | 1415 | 1690 | 1360 | 7.4 | 17.5 | 1 | -- | -- | <1 |
| JUL | | | | | | | | | |
| 05... | 1600 | 1700 | 1140 | 7.6 | 19.0 | -- | 2.1 | 3.5 | K3 |
| AUG | | | | | | | | | |
| 01... | 1500 | 1610 | 910 | 7.5 | 20.0 | -- | 3.0 | 3.2 | 7 |
| 29... | 1315 | 1700 | 830 | 7.5 | 20.5 | -- | 2.9 | 2.4 | 4 |
| SEP | | | | | | | | | |
| 26... | 1315 | 1290 | 745 | 7.5 | 20.0 | -- | 3.0 | 4.4 | 6 |

| DATE | STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | BICAR-BONATE (MG/L AS HCO3) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 28... | K2 | 220 | 81 | 57 | 19 | 230 | 6.7 | 6.1 | 170 |
| APR | | | | | | | | | |
| 07... | 84 | 180 | 67 | 48 | 15 | 160 | 5.2 | 5.7 | 140 |
| MAY | | | | | | | | | |
| 02... | K2 | 150 | 24 | 48 | 6.5 | 210 | 7.5 | 6.8 | 150 |
| JUN | | | | | | | | | |
| 06... | -- | 200 | 74 | 51 | 17 | 210 | 6.5 | 6.6 | 150 |
| JUL | | | | | | | | | |
| 05... | 2 | 180 | 83 | 47 | 16 | 160 | 5.1 | 5.3 | -- |
| AUG | | | | | | | | | |
| 01... | 10 | 140 | 33 | 39 | 11 | 130 | 4.7 | 4.5 | -- |
| 29... | K3 | 150 | 78 | 43 | 11 | 100 | 3.5 | 4.3 | -- |
| SEP | | | | | | | | | |
| 26... | 6 | 140 | 42 | 41 | 9.7 | 92 | 3.4 | 3.8 | -- |

< Actual value is known to be less than value shown.
K Based on non-ideal colony count.

09502000 SALT RIVER BELOW STEWART MOUNTAIN DAM, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | CARBONATE (MG/L AS CO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | SOLIDS, DISSOLVED (TONS PER AC-FT) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 28... | 0 | 68 | 350 | .4 | 17 | 835 | 831 | 1.14 |
| APR | | | | | | | | |
| 07... | 0 | 58 | 260 | .4 | 16 | 629 | 632 | .86 |
| MAY | | | | | | | | |
| 02... | 0 | 62 | 300 | .3 | 17 | 700 | 725 | .95 |
| JUN | | | | | | | | |
| 06... | 0 | 64 | 340 | .3 | 17 | 855 | 780 | 1.16 |
| JUL | | | | | | | | |
| 05... | -- | 57 | 260 | .3 | 15 | 621 | 621 | .84 |
| AUG | | | | | | | | |
| 01... | -- | 47 | 200 | .2 | 14 | 506 | 512 | .69 |
| 29... | -- | 54 | 170 | .2 | 14 | 459 | 442 | .62 |
| SEP | | | | | | | | |
| 26... | -- | 44 | 150 | .3 | 14 | 428 | 415 | .58 |

| DATE | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN, AMMONIA TOTAL (MG/L AS N) | NITROGEN, ORGANIC TOTAL (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | NITROGEN, NH4 + ORG. SUSP. TOTAL (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N) | NITROGEN, TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | PHOSPHORUS, DISSOLVED (MG/L AS P) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 28... | .01 | .00 | -- | -- | -- | .50 | -- | .04 | .02 |
| APR | | | | | | | | | |
| 07... | .37 | .06 | .69 | .75 | .01 | .74 | 1.1 | .07 | .06 |
| MAY | | | | | | | | | |
| 02... | .19 | .04 | .60 | .64 | .35 | .29 | .83 | .06 | .03 |
| JUN | | | | | | | | | |
| 06... | .09 | .04 | .55 | .59 | .24 | .35 | .68 | .04 | .01 |
| JUL | | | | | | | | | |
| 05... | .09 | .00 | .43 | .43 | .23 | .20 | .52 | .03 | .02 |
| AUG | | | | | | | | | |
| 01... | .11 | .01 | .41 | .42 | .09 | .33 | .53 | .04 | .02 |
| 29... | .13 | .03 | .35 | .38 | .11 | .27 | .51 | .04 | .03 |
| SEP | | | | | | | | | |
| 26... | .05 | .00 | 1.5 | 1.5 | 1.1 | .37 | 1.6 | .14 | .04 |

| DATE | ARSENIC TOTAL (UG/L AS AS) | ARSENIC DISSOLVED (UG/L AS AS) | BARIUM, TOTAL RECOVERABLE (UG/L AS BA) | BARIUM, DISSOLVED (UG/L AS BA) | CADMIUM TOTAL RECOVERABLE (UG/L AS CD) | CADMIUM DISSOLVED (UG/L AS CD) | CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) | CHROMIUM, DISSOLVED (UG/L AS CR) | COBALT, TOTAL RECOVERABLE (UG/L AS CO) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 28... | 7 | 6 | 200 | 0 | <10 | 0 | 10 | 0 | <50 |
| MAY | | | | | | | | | |
| 02... | 4 | 3 | 200 | 200 | 2 | 1 | 0 | 0 | 2 |
| AUG | | | | | | | | | |
| 01... | 4 | 3 | 200 | 60 | 1 | <1 | 0 | 0 | 2 |

< Actual value is known to be less than value shown.

09502000 SALT RIVER BELOW STEWART MOUNTAIN DAM, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | COBALT, DIS-SOLVED (UG/L AS CO) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) | COPPER, DIS-SOLVED (UG/L AS CU) | IRON, TOTAL RECOV-ERABLE (UG/L AS FE) | IRON, DIS-SOLVED (UG/L AS FE) | LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) | LEAD, DIS-SOLVED (UG/L AS PB) | MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) | MANGA-NESE, DIS-SOLVED (UG/L AS MN) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 28... | 0 | <10 | 2 | 130 | 30 | <100 | 1 | 120 | 40 |
| MAY | | | | | | | | | |
| 02... | 0 | 3 | 0 | 110 | 20 | 19 | 10 | 30 | 10 |
| AUG | | | | | | | | | |
| 01... | 0 | 5 | 2 | 180 | <10 | 0 | 4 | 70 | 30 |

| DATE | MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) | MERCURY DIS-SOLVED (UG/L AS HG) | SELE-NIUM, TOTAL (UG/L AS SE) | SELE-NIUM, DIS-SOLVED (UG/L AS SE) | SILVER, TOTAL RECOV-ERABLE (UG/L AS AG) | SILVER, DIS-SOLVED (UG/L AS AG) | ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) | ZINC, DIS-SOLVED (UG/L AS ZN) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 28... | .0 | .0 | 0 | 0 | <10 | 0 | 30 | 10 |
| MAY | | | | | | | | |
| 02... | .0 | .0 | 0 | 0 | 0 | 0 | 10 | 10 |
| AUG | | | | | | | | |
| 01... | .0 | .0 | 0 | 0 | 0 | 0 | 20 | 7 |

| DATE | CARBON, ORGANIC TOTAL (MG/L AS C) | LENGTH OF EXPO-SURE (DAYS) | PHYTO-PLANK-TON, TOTAL (CELLS PER ML) | PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M | PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M | CHLOR-A PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) | CHLOR-B PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) |
|---|---|---|---|---|---|---|---|
| OCT | | | | | | | |
| 28... | 2.8 | -- | -- | -- | -- | -- | -- |
| APR | | | | | | | |
| 07... | 3.5 | -- | 120 | -- | -- | -- | -- |
| MAY | | | | | | | |
| 02... | -- | 25 | -- | 1.10 | .551 | 2.52 | 1.57 |
| JUN | | | | | | | |
| 06... | 3.0 | -- | 710 | -- | -- | -- | -- |
| JUL | | | | | | | |
| 05... | 4.9 | -- | 290 | -- | -- | -- | -- |
| AUG | | | | | | | |
| 01... | 5.6 | 27 | 450 | .472 | .157 | 6.95 | 3.55 |
| 29... | -- | -- | 490 | -- | -- | -- | -- |
| SEP | | | | | | | |
| 26... | -- | -- | 1000 | -- | -- | -- | -- |

< Actual value is known to be less than value shown.

09502000 SALT RIVER BELOW STEWART MOUNTAIN DAM, AZ--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1400 | | | | --- | --- | 1080 | 1220 | 1230 | 1180 | 940 | 845 |
| 2 | 1400 | | | | 1080 | --- | 1050 | 1220 | 1420 | 1180 | 940 | 840 |
| 3 | 1400 | | | | --- | --- | 1070 | 1220 | 1500 | 1140 | 940 | 830 |
| 4 | 1400 | | | | --- | --- | 1030 | 1220 | 1440 | 1140 | 940 | 820 |
| 5 | 1400 | | | | --- | --- | --- | --- | 1480 | 1140 | 940 | 820 |
| 6 | 1400 | | | | --- | --- | --- | 1200 | 1500 | 1160 | 925 | 740 |
| 7 | 1400 | | | | --- | --- | 1000 | 1210 | 1480 | 1150 | 925 | 740 |
| 8 | 1400 | | | | --- | --- | 1010 | 1230 | 1420 | 1130 | 940 | 740 |
| 9 | 1400 | | | | --- | --- | 1010 | 1210 | 1460 | 1110 | 920 | 730 |
| 10 | 1400 | | | | --- | --- | 1030 | 1220 | 1400 | 1100 | 915 | 725 |
| 11 | 1300 | | | | --- | --- | 1000 | 1240 | 1400 | 1060 | 915 | 730 |
| 12 | 1300 | | | | --- | --- | 1090 | 1290 | 1360 | 1080 | 895 | 730 |
| 13 | 1300 | | | | --- | --- | 1090 | 1220 | --- | 1060 | 880 | 730 |
| 14 | 1400 | | | | --- | --- | 1000 | 1220 | 1370 | 1080 | 890 | 720 |
| 15 | 1400 | | | | --- | --- | 1000 | 1210 | 1370 | 1030 | 890 | 720 |
| 16 | 1300 | | | | --- | --- | 1000 | 1220 | 1340 | 1020 | 880 | 720 |
| 17 | 1300 | | | | --- | --- | 1000 | 1210 | 1480 | 1040 | 875 | 720 |
| 18 | 1300 | | | | --- | --- | 1000 | 1210 | 1440 | --- | 870 | 720 |
| 19 | 1300 | | | | --- | --- | 1000 | 1200 | 1440 | --- | 870 | 720 |
| 20 | 1300 | | | | --- | 1090 | 1000 | 1290 | 1320 | 990 | 870 | 720 |
| 21 | 1400 | | | | --- | 1080 | 1060 | 1250 | 1300 | 985 | 865 | 710 |
| 22 | 1400 | | | | --- | 1030 | 1060 | 1270 | 1300 | 1000 | 860 | 710 |
| 23 | 1400 | | | | --- | --- | 1060 | 1290 | 1260 | 990 | 860 | 710 |
| 24 | 1300 | | | | --- | --- | 1010 | 1290 | 1260 | 980 | 860 | 710 |
| 25 | 1300 | | | | --- | --- | 1020 | 1290 | 1240 | 960 | 860 | 710 |
| 26 | 1400 | | | | --- | --- | 1020 | 1290 | 1220 | 975 | 845 | 705 |
| 27 | 1400 | | | | --- | --- | 1090 | 1240 | 1230 | 980 | 850 | 710 |
| 28 | --- | | | | --- | --- | 1100 | 1240 | 1220 | 955 | 845 | 710 |
| 29 | --- | | | | --- | --- | --- | 1240 | 1200 | 930 | 845 | 710 |
| 30 | --- | | | | --- | --- | 1220 | 1240 | 1190 | 940 | 840 | 710 |
| 31 | --- | | | | --- | 1080 | --- | 1230 | --- | 950 | 845 | --- |
| MAX | 1400 | | | | 1080 | 1090 | 1220 | 1290 | 1500 | 1180 | 940 | 845 |
| MIN | 1300 | | | | 1080 | 1030 | 1000 | 1200 | 1190 | 930 | 840 | 705 |

WTR YR 1978 MAX 1500 MIN 705

09502000 SALT RIVER BELOW STEWART MOUNTAIN DAM, AZ--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 23.0 | | | | --- | --- | 19.0 | 18.0 | 17.0 | 19.0 | 20.0 | 22.0 |
| 2 | 23.0 | | | | 15.0 | --- | 18.0 | 18.0 | 17.0 | 20.0 | 21.0 | 22.0 |
| 3 | 24.0 | | | | --- | --- | 17.0 | 18.0 | 18.0 | 20.0 | 20.0 | 23.0 |
| 4 | 24.0 | | | | --- | --- | 18.0 | 18.0 | 17.0 | 20.0 | 20.0 | 23.0 |
| 5 | 23.0 | | | | --- | --- | --- | --- | 18.0 | 20.0 | 22.0 | 24.0 |
| 6 | 23.0 | | | | --- | --- | --- | 18.0 | 20.0 | 20.0 | 21.0 | 24.0 |
| 7 | 24.0 | | | | --- | --- | 19.0 | 19.0 | 18.0 | 20.0 | 22.0 | 23.0 |
| 8 | 23.0 | | | | --- | --- | 14.0 | 18.0 | 19.0 | 20.0 | 22.0 | 23.0 |
| 9 | 22.0 | | | | --- | --- | --- | 19.0 | 19.0 | 20.0 | 22.0 | 23.0 |
| 10 | 22.0 | | | | --- | --- | 15.0 | 19.0 | 19.0 | 20.0 | 23.0 | 22.0 |
| 11 | 22.0 | | | | --- | --- | 15.0 | 19.0 | 19.0 | 20.0 | 22.0 | 22.0 |
| 12 | 22.0 | | | | --- | --- | 15.0 | 19.0 | 19.0 | 19.0 | 23.0 | 23.0 |
| 13 | 22.0 | | | | --- | --- | 17.0 | 17.0 | --- | 20.0 | 22.0 | 23.0 |
| 14 | 22.0 | | | | --- | --- | 18.0 | --- | 19.0 | --- | 22.0 | 22.0 |
| 15 | 19.0 | | | | --- | --- | 17.0 | 17.0 | 19.0 | 20.0 | 23.0 | 22.0 |
| 16 | 19.0 | | | | --- | --- | 15.0 | 17.0 | 19.0 | 20.0 | 23.0 | 21.0 |
| 17 | 19.0 | | | | --- | --- | 18.0 | 17.0 | 19.0 | 20.0 | 22.0 | 21.0 |
| 18 | 19.0 | | | | --- | --- | 18.0 | 18.0 | 19.0 | --- | 23.0 | 20.0 |
| 19 | 19.0 | | | | --- | --- | 18.0 | 17.0 | 19.0 | --- | 21.0 | 20.0 |
| 20 | 19.0 | | | | --- | 15.0 | 18.0 | 17.0 | 19.0 | 20.0 | 21.0 | 20.0 |
| 21 | 19.0 | | | | --- | 16.0 | 18.0 | 18.0 | 19.0 | 21.0 | 21.0 | 20.0 |
| 22 | 19.0 | | | | --- | 10.0 | 18.0 | 18.0 | 19.0 | 20.0 | 21.0 | 20.0 |
| 23 | 19.0 | | | | --- | --- | 18.0 | 18.0 | 19.0 | 20.0 | 21.0 | 20.0 |
| 24 | 19.0 | | | | --- | --- | 18.0 | 18.0 | 18.0 | 20.0 | 21.0 | 20.0 |
| 25 | 18.0 | | | | --- | --- | 18.0 | 18.0 | 18.0 | 20.0 | 21.0 | 20.0 |
| 26 | 19.0 | | | | --- | --- | 18.0 | 18.0 | 18.0 | 20.0 | 20.0 | 20.0 |
| 27 | 19.0 | | | | --- | --- | 18.0 | 17.0 | 18.0 | 20.0 | 21.0 | 22.0 |
| 28 | --- | | | | --- | --- | 18.0 | 17.0 | 18.0 | 20.0 | 21.0 | 22.0 |
| 29 | --- | | | | --- | --- | --- | 17.0 | 19.0 | 20.0 | 21.0 | 21.0 |
| 30 | --- | | | | --- | --- | 18.0 | 17.0 | 19.0 | 20.0 | 21.0 | 22.0 |
| 31 | --- | | | | --- | 10.0 | --- | 17.0 | --- | 20.0 | 20.0 | --- |
| MAX | 24.0 | | | | 15.0 | 16.0 | 19.0 | 19.0 | 20.0 | 21.0 | 23.0 | 24.0 |
| MIN | 18.0 | | | | 15.0 | 10.0 | 14.0 | 17.0 | 17.0 | 19.0 | 20.0 | 20.0 |

WTR YR 1978 MAX 24.0 MIN 10.0

09502000 SALT RIVER BELOW STEWART MOUNTAIN DAM, AZ--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

PHYTOPLANKTON

| DATE | APR 7,78 | | JUN 6,78 | | JUL 5,78 | | AUG 1,78 | | AUG 29,78 | | SEP 26,78 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TIME | 0930 | | 1415 | | 1600 | | 1500 | | 1315 | | 1315 | |
| TOTAL CELLS/ML | 120 | | 710 | | 290 | | 450 | | 490 | | 1000 | |
| DIVERSITY: DIVISION | 1.4 | | 1.5 | | 1.0 | | 0.9 | | 1.4 | | 1.0 | |
| .CLASS | 1.4 | | 1.5 | | 1.0 | | 0.9 | | 1.4 | | 1.0 | |
| ..ORDER | 1.4 | | 2.4 | | 1.7 | | 1.1 | | 1.5 | | 1.3 | |
| ...FAMILY | 1.7 | | 2.9 | | 2.2 | | 2.0 | | 2.2 | | 1.8 | |
| ....GENUS | 1.7 | | 0.0 | | 2.2 | | 2.3 | | 2.2 | | 0.0 | |
| ORGANISM | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT |
| CHLOROPHYTA (GREEN ALGAE) | | | | | | | | | | | | |
| .CHLOROPHYCEAE | | | | | | | | | | | | |
| ..CHLOROCOCCALES | | | | | | | | | | | | |
| ...HYDRODICTYACEAE | | | | | | | | | | | | |
| ....PEDIASTRUM | -- | - | -- | - | -- | - | 11 | 2 | -- | - | -- | - |
| ...MICRACTINIACEAE | | | | | | | | | | | | |
| ....GOLENKINIA | -- | - | -- | - | -- | - | 5 | 1 | -- | - | -- | - |
| ....MICRACTINIUM | -- | - | -- | - | -- | - | 11 | 2 | -- | - | 9 | 1 |
| ...OOCYSTACEAE | | | | | | | | | | | | |
| ....ANKISTRODESMUS | -- | - | 45 | 6 | -- | - | 11 | 2 | -- | - | 20 | 2 |
| ....KIRCHNERIELLA | -- | - | 45 | 6 | -- | - | -- | - | -- | - | * | 0 |
| ....OOCYSTIS | -- | - | 89 | 13 | -- | - | -- | - | -- | - | -- | - |
| ....TETRAEDRON | -- | - | 67 | 9 | 48# | 17 | 54 | 12 | 16 | 3 | 44 | 4 |
| ...SCENEDESMACEAE | | | | | | | | | | | | |
| ....CRUCIGENIA | -- | - | -- | - | -- | - | -- | - | -- | - | 7 | 1 |
| ....SCENEDESMUS | -- | - | 45 | 6 | 97# | 33 | 220# | 48 | 120# | 24 | 120 | 11 |
| ....TETRASTRUM | -- | - | -- | - | -- | - | 11 | 2 | -- | - | -- | - |
| ..VOLVOCALES | | | | | | | | | | | | |
| ...CHLAMYDOMONADACEAE | | | | | | | | | | | | |
| ....CHLAMYDOMONAS | 68# | 56 | 45 | 6 | 72# | 25 | 3 | 1 | -- | - | * | 0 |
| ...VOLVOCACEAE | | | | | | | | | | | | |
| ....PANDORINA | -- | - | -- | - | -- | - | 13 | 3 | -- | - | -- | - |
| ..ZYGNEMATALES | | | | | | | | | | | | |
| ...DESMIDIACEAE | | | | | | | | | | | | |
| ....COSMARIUM | -- | - | 45 | 6 | -- | - | -- | - | -- | - | -- | - |
| CHRYSOPHYTA | | | | | | | | | | | | |
| .BACILLARIOPHYCEAE | | | | | | | | | | | | |
| ..CENTRALES | | | | | | | | | | | | |
| ...COSCINODISCACEAE | | | | | | | | | | | | |
| ....CYCLOTELLA | -- | - | 89 | 13 | -- | - | 8 | 2 | 48 | 10 | 16 | 2 |
| ....MELOSIRA | -- | - | -- | - | -- | - | -- | - | -- | - | * | 0 |
| ..PENNALES | | | | | | | | | | | | |
| ...DIATOMACEAE | | | | | | | | | | | | |
| ....DIATOMA | -- | - | -- | - | -- | - | -- | - | -- | - | 11 | 1 |
| ...FRAGILARIACEAE | | | | | | | | | | | | |
| ....SYNEDRA | 14 | 11 | 89 | 13 | -- | - | -- | - | -- | - | * | 0 |
| ...NAVICULACEAE | | | | | | | | | | | | |
| ....NAVICULA | -- | - | 45 | 6 | -- | - | -- | - | 11 | 2 | 5 | 1 |
| ...NITZSCHIACEAE | | | | | | | | | | | | |
| ....NITZSCHIA | 14 | 11 | 22 | 3 | -- | - | -- | - | 5 | 1 | * | 0 |
| CYANOPHYTA (BLUE-GREEN ALGAE) | | | | | | | | | | | | |
| .CYANOPHYCEAE | | | | | | | | | | | | |
| ..HORMOGONALES | | | | | | | | | | | | |
| ...OSCILLATORIACEAE | | | | | | | | | | | | |
| ....LYNGBYA | -- | - | -- | - | -- | - | -- | - | -- | - | 600# | 59 |
| ....OSCILLATORIA | -- | - | -- | - | -- | - | -- | - | 210# | 43 | 89 | 9 |
| ....SPIRULINA | -- | - | -- | - | 24 | 8 | -- | - | -- | - | -- | - |
| ...RIVULARIACEAE | | | | | | | | | | | | |
| ....RAPHIDIOPSIS | -- | - | -- | - | -- | - | 100# | 23 | 75# | 15 | 30 | 3 |
| ..CHROOCOCCALES | | | | | | | | | | | | |
| ...UNKNOWN 218010101021000 | -- | - | 45 | 6 | -- | - | -- | - | -- | - | -- | - |
| ...UNKNOWN 218010101023000 | -- | - | -- | - | -- | - | -- | - | -- | - | 57 | 6 |
| EUGLENOPHYTA (EUGLENOIDS) | | | | | | | | | | | | |
| .EUGLENOPHYCEAE | | | | | | | | | | | | |
| ..EUGLENALES | | | | | | | | | | | | |
| ...EUGLENACEAE | | | | | | | | | | | | |
| ....EUGLENA | 27# | 22 | -- | - | -- | - | -- | - | 5 | 1 | -- | - |
| ....TRACHELOMONAS | -- | - | 45 | 6 | 48# | 17 | -- | - | -- | - | -- | - |
| PYRRHOPHYTA (FIRE ALGAE) | | | | | | | | | | | | |
| .DINOPHYCEAE | | | | | | | | | | | | |
| ..PERIDINIALES | | | | | | | | | | | | |
| ...GLENODINIACEAE | | | | | | | | | | | | |
| ....GLENODINIUM | -- | - | -- | - | -- | - | -- | - | -- | - | * | 0 |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

## 09502800 WILLIAMSON VALLEY WASH NEAR PAULDEN, AZ

LOCATION.--Lat 34°52'00", long 112°36'45", in SE¼SE¼ sec.7, T.17 N., R.3 W., Yavapai County, Hydrologic Unit 15060201, on left bank 3.6 mi (5.8 km) north of Simmons and 8.5 mi (13.7 km) west of Paulden.

DRAINAGE AREA.--255 $mi^2$ (660 $km^2$).

PERIOD OF RECORD.--March 1965 to current year.

GAGE.--Water-stage recorder. Datum of gage is 4,455 ft (1,357.9 m) National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1970, at datum 1.00 ft (0.305 m) higher. Datum of 4,447 ft (1,355.4 m) published in WRD Ariz. 1971-76 was in error.

REMARKS.--Records fair.

AVERAGE DISCHARGE.--13 years, 10.8 $ft^3/s$ (0.306 $m^3/s$), 7,820 acre-ft/yr (9.64 $hm^3/yr$); median of yearly mean discharges, 4.9 $ft^3/s$ (0.14 $m^3/s$), 3,600 acre-ft/yr (4.4 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,490 $ft^3/s$ (212 $m^3/s$) Mar. 1, 1978, gage height, 8.22 ft (2.505 m); no flow at times in most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*) and peak discharges above base of 100 $ft^3/s$ (2.83 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) | Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Jan. 15 | 1930 | 104 | 2.95 | 3.92 | 1.195 | Mar. 1 | 0815 | *7,490 | 212 | 8.22 | 2.505 |
| Feb. 10 | Unknown | 895 | 25.3 | 5.55 | 1.692 | Mar. 5 | 1130 | 3,640 | 103 | 6.52 | 1.987 |
| Feb. 28 | 1315 | 3,540 | 100 | 7.32 | 2.231 | Mar. 12 | 2315 | 792 | 22.4 | 4.41 | 1.344 |

No flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1.3 | 1.3 | 2.1 | 1.7 | 6.5 | 4180 | 7.1 | 6.3 | .00 | .00 | 3.0 | .00 |
| 2 | 1.3 | 1.3 | 2.1 | 1.6 | 2.0 | 1850 | 7.6 | 6.0 | .00 | .00 | .28 | .00 |
| 3 | 1.3 | 1.3 | 1.9 | 1.7 | 1.6 | 1740 | 7.5 | 5.8 | .00 | .00 | .59 | .00 |
| 4 | 1.3 | 1.3 | 1.8 | 2.0 | 1.4 | 318 | 6.8 | 5.6 | .00 | .00 | .00 | .00 |
| 5 | 1.4 | 1.3 | 1.8 | 1.9 | 1.5 | 1160 | 6.7 | 5.6 | .00 | .00 | .00 | 1.1 |
| 6 | 3.6 | 1.3 | 1.8 | 1.9 | 1.6 | 648 | 6.4 | 5.5 | .00 | .00 | .00 | .30 |
| 7 | 1.9 | 1.5 | 1.8 | 1.9 | 1.2 | 242 | 6.4 | 5.7 | .00 | .00 | .00 | .05 |
| 8 | 1.4 | 1.4 | 1.9 | 1.9 | 1.2 | 110 | 7.8 | 5.5 | .00 | .00 | 2.6 | .02 |
| 9 | 1.5 | 1.3 | 1.9 | 2.0 | 1.2 | 60 | 11 | 5.1 | .00 | .00 | 3.0 | .00 |
| 10 | 1.4 | 1.3 | 2.0 | 2.9 | 300 | 40 | 9.5 | 4.4 | .00 | .00 | 2.0 | .00 |
| 11 | 1.3 | 1.3 | 2.0 | 2.5 | 100 | 66 | 7.9 | 4.0 | .00 | .00 | 1.4 | .00 |
| 12 | 1.3 | 1.4 | 2.0 | 1.9 | 50 | 560 | 7.0 | 3.9 | .00 | .00 | .39 | .00 |
| 13 | 1.3 | 1.4 | 2.0 | 1.9 | 20 | 373 | 6.2 | 3.9 | .00 | .00 | .05 | .00 |
| 14 | 1.4 | 1.4 | 2.1 | 1.9 | 10 | 183 | 5.8 | 2.5 | .00 | .00 | .02 | .00 |
| 15 | 1.2 | 1.5 | 2.0 | 36 | 20 | 82 | 5.5 | .79 | .00 | .00 | .00 | .00 |
| 16 | 1.3 | 1.5 | 1.8 | 11 | 20 | 10 | 5.5 | .07 | .00 | .00 | .00 | .00 |
| 17 | 1.3 | 1.5 | 1.7 | 14 | 10 | 31 | 5.4 | .00 | .00 | .00 | .00 | .00 |
| 18 | 1.4 | 1.5 | 1.9 | 5.0 | 10 | 23 | 5.3 | .00 | .00 | .00 | .00 | .00 |
| 19 | 1.5 | 1.6 | 1.8 | 2.6 | 6.0 | 18 | 5.3 | .00 | .00 | .00 | .00 | .00 |
| 20 | 1.6 | 1.6 | 1.6 | 11 | 3.0 | 15 | 5.1 | .00 | .00 | .00 | .00 | .00 |
| 21 | 1.4 | 1.6 | 1.7 | 2.2 | 2.6 | 11 | 5.1 | .00 | .00 | .00 | .00 | .00 |
| 22 | 1.4 | 1.7 | 1.8 | 1.6 | 2.6 | 16 | 4.9 | .00 | .00 | .00 | .00 | .00 |
| 23 | 1.4 | 1.7 | 1.7 | 1.5 | 2.6 | 20 | 4.9 | .00 | .00 | .00 | .00 | .00 |
| 24 | 1.2 | 1.7 | 1.7 | 1.2 | 2.6 | 11 | 4.9 | .00 | .00 | .00 | .00 | .00 |
| 25 | 1.3 | 1.8 | 1.6 | 1.2 | 2.6 | 8.5 | 4.8 | .00 | .00 | .00 | .00 | .00 |
| 26 | 1.3 | 1.8 | 1.8 | 1.2 | 2.6 | 7.8 | 4.6 | .00 | .00 | .00 | .00 | .00 |
| 27 | 1.3 | 1.9 | 1.9 | 1.2 | 2.6 | 7.4 | 4.8 | .00 | .00 | .00 | .00 | .00 |
| 28 | 1.3 | 1.9 | 2.2 | 1.2 | 1540 | 7.3 | 5.4 | .00 | .00 | .00 | .00 | .00 |
| 29 | 1.3 | 1.9 | 2.0 | 1.1 | --- | 6.9 | 5.6 | .00 | .00 | .00 | .00 | .00 |
| 30 | 1.3 | 2.0 | 2.0 | 1.3 | --- | 6.9 | 5.5 | .00 | .00 | .00 | .00 | .00 |
| 31 | 1.3 | --- | 1.8 | 8.4 | --- | 7.0 | --- | .00 | --- | 1.3 | .00 | --- |
| TOTAL | 44.5 | 46.0 | 58.2 | 129.4 | 2125.4 | 11818.8 | 186.3 | 70.66 | .00 | 1.30 | 13.33 | 1.47 |
| MEAN | 1.44 | 1.53 | 1.88 | 4.17 | 75.9 | 381 | 6.21 | 2.28 | .000 | .042 | .43 | .049 |
| MAX | 3.6 | 2.0 | 2.2 | 36 | 1540 | 4180 | 11 | 6.3 | .00 | 1.3 | 3.0 | 1.1 |
| MIN | 1.2 | 1.3 | 1.6 | 1.1 | 1.2 | 6.9 | 4.6 | .00 | .00 | .00 | .00 | .00 |
| AC-FT | 88 | 91 | 115 | 257 | 4220 | 23440 | 370 | 140 | .00 | 2.6 | 26 | 2.9 |

CAL YR 1977 TOTAL 999.18 MEAN 2.74 MAX 233 MIN .27 AC-FT 1980
WTR YR 1978 TOTAL 14495.36 MEAN 39.7 MAX 4180 MIN .00 AC-FT 28750

## 09503700 VERDE RIVER NEAR PAULDEN, AZ

LOCATION.--Lat 34°53'40", long 112°20'32", in SW¼SW¼ sec.35, T.18 N., R.1 W., Yavapai County, Hydrologic Unit 15060201, in Prescott National Forest, on right bank 0.3 mi (0.5 km) upstream from Verde Valley Ranch, 7 mi (11 km) east of Paulden, 8 mi (13 km) upstream from Hell Canyon, 8 mi (13 km) downstream from Granite Creek, and 10 mi (16 km) downstream from Sullivan Lake.

DRAINAGE AREA.--2,530 $mi^2$ (6,550 $km^2$), approximately (includes 373 $mi^2$ or 966 $km^2$ in Aubrey Valley Playa, a closed basin).

PERIOD OF RECORD.--July 1963 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 4,117 ft (1,255 m), from topographic map.

REMARKS.--Records good. Diversions and storage above station for irrigation and municipal use.

AVERAGE DISCHARGE.--15 years, 35.7 $ft^3/s$ (1.011 $m^3/s$), 25,860 acre-ft/yr (31.9 $hm^3/yr$); median of yearly mean discharges, 27 $ft^3/s$ (0.76 $m^3/s$), 19,600 acre-ft/yr (24 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,080 $ft^3/s$ (229 $m^3/s$) Mar. 1, 1978, gage height, 9.66 ft (2.944 m); minimum daily, 15 $ft^3/s$ (0.42 $m^3/s$) May 13-23, 1964.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*) and peak discharges above base of 300 $ft^3/s$ (8.50 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) | Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Feb. 11 | 1600 | 546 | 15.5 | 4.27 | 1.301 | Mar. 6 | 1745 | 1,990 | 56.4 | 6.65 | 2.027 |
| Mar. 1 | 1530 | *8,080 | 229 | 9.66 | 2.944 | Mar. 13 | 1015 | 632 | 17.9 | 4.91 | 1.496 |
| Mar. 5 | 1945 | 2,770 | 78.4 | 7.26 | 2.213 | Aug. 10 | 1815 | 1,970 | 55.8 | 6.62 | 2.018 |

Minimum daily, 20 $ft^3/s$ (0.57 $m^3/s$) July 2-4, 7, 11-13, 19, 27-30, Aug. 28 to Sept. 12, Sept. 14, 15, 28-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 21 | 23 | 22 | 23 | 22 | 4000 | 27 | 26 | 22 | 21 | 29 | 20 |
| 2 | 21 | 23 | 22 | 23 | 22 | 6210 | 28 | 25 | 22 | 20 | 22 | 20 |
| 3 | 21 | 22 | 22 | 23 | 22 | 5400 | 28 | 24 | 22 | 20 | 82 | 20 |
| 4 | 21 | 22 | 22 | 23 | 22 | 1150 | 27 | 24 | 22 | 20 | 30 | 20 |
| 5 | 22 | 22 | 22 | 23 | 22 | 1050 | 27 | 24 | 22 | 21 | 23 | 20 |
| 6 | 30 | 22 | 22 | 22 | 22 | 1610 | 27 | 24 | 21 | 21 | 22 | 20 |
| 7 | 23 | 23 | 22 | 22 | 22 | 722 | 27 | 24 | 21 | 20 | 21 | 20 |
| 8 | 22 | 22 | 21 | 22 | 22 | 264 | 28 | 24 | 21 | 21 | 21 | 20 |
| 9 | 22 | 22 | 21 | 22 | 22 | 141 | 27 | 24 | 21 | 21 | 21 | 20 |
| 10 | 21 | 22 | 21 | 23 | 22 | 92 | 27 | 23 | 21 | 21 | 214 | 20 |
| 11 | 22 | 22 | 21 | 24 | 213 | 69 | 27 | 23 | 21 | 20 | 31 | 20 |
| 12 | 21 | 22 | 21 | 22 | 177 | 261 | 27 | 23 | 21 | 20 | 86 | 20 |
| 13 | 22 | 22 | 21 | 22 | 64 | 469 | 26 | 23 | 21 | 20 | 72 | 21 |
| 14 | 21 | 22 | 21 | 22 | 37 | 338 | 26 | 23 | 21 | 21 | 131 | 20 |
| 15 | 21 | 22 | 21 | 22 | 30 | 218 | 26 | 23 | 21 | 21 | 43 | 20 |
| 16 | 21 | 22 | 21 | 22 | 39 | 168 | 26 | 23 | 21 | 21 | 26 | 21 |
| 17 | 21 | 22 | 21 | 22 | 30 | 107 | 25 | 22 | 21 | 21 | 22 | 21 |
| 18 | 22 | 22 | 21 | 22 | 26 | 74 | 25 | 23 | 21 | 21 | 21 | 21 |
| 19 | 22 | 22 | 22 | 24 | 24 | 56 | 25 | 23 | 21 | 20 | 21 | 21 |
| 20 | 22 | 22 | 22 | 24 | 23 | 41 | 25 | 23 | 21 | 21 | 21 | 21 |
| 21 | 22 | 22 | 22 | 22 | 23 | 35 | 25 | 23 | 21 | 21 | 21 | 21 |
| 22 | 22 | 22 | 22 | 22 | 22 | 32 | 25 | 23 | 21 | 21 | 21 | 21 |
| 23 | 22 | 22 | 22 | 22 | 22 | 31 | 25 | 22 | 21 | 21 | 21 | 21 |
| 24 | 22 | 22 | 22 | 22 | 22 | 30 | 25 | 22 | 21 | 22 | 21 | 21 |
| 25 | 22 | 22 | 22 | 22 | 22 | 29 | 25 | 23 | 21 | 22 | 21 | 21 |
| 26 | 22 | 22 | 23 | 22 | 22 | 28 | 25 | 23 | 21 | 21 | 21 | 21 |
| 27 | 22 | 22 | 23 | 22 | 23 | 28 | 24 | 23 | 21 | 20 | 21 | 21 |
| 28 | 22 | 22 | 23 | 22 | 227 | 28 | 24 | 22 | 21 | 20 | 20 | 20 |
| 29 | 23 | 22 | 24 | 22 | --- | 28 | 24 | 22 | 21 | 20 | 20 | 20 |
| 30 | 23 | 22 | 24 | 22 | --- | 28 | 24 | 22 | 21 | 20 | 20 | 20 |
| 31 | 23 | --- | 23 | 22 | --- | 27 | --- | 22 | --- | 32 | 20 | --- |
| TOTAL | 684 | 663 | 679 | 694 | 1266 | 20724 | 777 | 718 | 635 | 652 | 1186 | 613 |
| MEAN | 22.1 | 22.1 | 21.9 | 22.4 | 45.2 | 669 | 25.9 | 23.2 | 21.2 | 21.0 | 38.3 | 20.4 |
| MAX | 30 | 23 | 24 | 24 | 227 | 6210 | 28 | 26 | 22 | 32 | 214 | 21 |
| MIN | 21 | 22 | 21 | 22 | 22 | 27 | 24 | 22 | 21 | 20 | 20 | 20 |
| AC-FT | 1360 | 1320 | 1350 | 1380 | 2510 | 41110 | 1540 | 1420 | 1260 | 1290 | 2350 | 1220 |

CAL YR 1977 TOTAL 9308 MEAN 25.5 MAX 408 MIN 20 AC-FT 18460
WTR YR 1978 TOTAL 29291 MEAN 80.2 MAX 6210 MIN 20 AC-FT 58100

## 09504000 VERDE RIVER NEAR CLARKDALE, AZ

LOCATION (REVISED).--Lat 34°51'08", long 112°03'55", in NW¼SE¼ sec.17, T.17 N., R.3 E., Yavapai County, Hydrologic Unit 15060202, in Prescott National Forest, on left bank 1.7 mi (2.7 km) downstream from Sycamore Creek and 5.6 mi (9.0 km) north of Clarkdale.

DRAINAGE AREA.--3,520 $mi^2$ (9,120 $km^2$), approximately (includes 373 $mi^2$ or 966 $km^2$ in Aubrey Valley Playa, a closed basin).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1915 to October 1916, June 1917 to June 1921, April 1965 to current year.

REVISED RECORDS.--WSP 1213: 1917, 1920.

GAGE.--Water-stage recorder. Altitude of gage is 3,500 ft (1,070 m), from bench mark at gage. June 1915 to June 1921 at site 2.5 mi (4.0 km) downstream at different datum.

REMARKS.--Records good.

AVERAGE DISCHARGE.--17 years (water years 1916, 1918-20, 1966-78), 187 $ft^3/s$ (5.296 $m^3/s$), 135,500 acre-ft/yr (167 $hm^3/yr$); median of yearly mean discharges, 150 $ft^3/s$ (4.25 $m^3/s$), 109,000 acre-ft/yr (134 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 50,600 $ft^3/s$ (1,430 $m^3/s$) Feb. 21, 1920, gage height, 19.1 ft (5.82 m), site and datum then in use, from rating curve extended above 2,500 $ft^3/s$ (71 $m^3/s$) on basis of float-area measurement at 35,000 $ft^3/s$ (990 $m^3/s$); minimum daily, 55 $ft^3/s$ (1.56 $m^3/s$) Aug. 31, Sept. 1, 1920.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*), (from rating curve extended above 20,200 $ft^3/s$ or 572 $m^3/s$) and peak discharges above base of 2,000 $ft^3/s$ (56.6 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) | Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mar. 1 | 1030 | *25,000 | 708 | 16.92 | 5.157 | Mar. 12 | 2400 | 3,720 | 105 | 5.89 | 1.795 |
| Mar. 5 | 2245 | 9,640 | 273 | 10.21 | 3.112 | Mar. 22 | 1400 | 2,390 | 67.7 | 4.78 | 1.457 |

Minimum daily, 60 $ft^3/s$ (1.70 $m^3/s$) June 27, July 3, 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 75 | 77 | 78 | 84 | 800 | 18100 | 140 | 83 | 66 | 61 | 79 | 66 |
| 2 | 75 | 77 | 76 | 84 | 420 | 17800 | 130 | 83 | 66 | 61 | 83 | 66 |
| 3 | 75 | 77 | 76 | 84 | 180 | 13400 | 665 | 83 | 66 | 60 | 125 | 66 |
| 4 | 75 | 77 | 77 | 86 | 97 | 3330 | 332 | 80 | 66 | 60 | 110 | 95 |
| 5 | 75 | 76 | 76 | 100 | 100 | 5280 | 196 | 77 | 66 | 61 | 83 | 74 |
| 6 | 105 | 79 | 76 | 88 | 130 | 5940 | 187 | 74 | 66 | 61 | 75 | 70 |
| 7 | 87 | 79 | 77 | 86 | 120 | 3200 | 170 | 72 | 66 | 61 | 72 | 68 |
| 8 | 80 | 78 | 75 | 86 | 140 | 1310 | 160 | 70 | 65 | 61 | 70 | 67 |
| 9 | 78 | 77 | 75 | 90 | 130 | 811 | 150 | 69 | 65 | 62 | 70 | 66 |
| 10 | 77 | 78 | 75 | 110 | 200 | 631 | 140 | 69 | 64 | 62 | 72 | 66 |
| 11 | 76 | 78 | 75 | 100 | 360 | 512 | 244 | 68 | 64 | 64 | 254 | 64 |
| 12 | 76 | 78 | 75 | 89 | 600 | 1260 | 199 | 68 | 64 | 62 | 105 | 62 |
| 13 | 76 | 78 | 74 | 83 | 500 | 2330 | 150 | 67 | 64 | 62 | 143 | 63 |
| 14 | 76 | 78 | 74 | 84 | 360 | 1760 | 140 | 66 | 64 | 62 | 151 | 64 |
| 15 | 76 | 78 | 74 | 95 | 280 | 1350 | 130 | 65 | 64 | 75 | 141 | 64 |
| 16 | 76 | 78 | 74 | 115 | 230 | 927 | 120 | 66 | 64 | 67 | 92 | 65 |
| 17 | 76 | 78 | 74 | 150 | 200 | 623 | 110 | 66 | 64 | 65 | 79 | 65 |
| 18 | 76 | 78 | 74 | 120 | 170 | 521 | 100 | 66 | 64 | 65 | 75 | 64 |
| 19 | 76 | 78 | 73 | 94 | 150 | 462 | 100 | 67 | 63 | 65 | 73 | 64 |
| 20 | 77 | 78 | 72 | 81 | 140 | 629 | 95 | 67 | 63 | 64 | 73 | 64 |
| 21 | 77 | 77 | 73 | 76 | 120 | 587 | 90 | 66 | 63 | 64 | 71 | 64 |
| 22 | 77 | 77 | 73 | 76 | 180 | 1490 | 85 | 66 | 63 | 64 | 71 | 65 |
| 23 | 77 | 77 | 73 | 76 | 450 | 1130 | 85 | 65 | 63 | 64 | 70 | 65 |
| 24 | 76 | 77 | 73 | 76 | 380 | 625 | 80 | 65 | 62 | 65 | 70 | 65 |
| 25 | 76 | 77 | 73 | 77 | 327 | 428 | 80 | 66 | 62 | 77 | 70 | 65 |
| 26 | 77 | 77 | 74 | 77 | 313 | 297 | 80 | 66 | 61 | 68 | 70 | 66 |
| 27 | 77 | 78 | 75 | 77 | 287 | 232 | 81 | 67 | 60 | 66 | 69 | 66 |
| 28 | 77 | 78 | 80 | 78 | 5800 | 207 | 80 | 67 | 61 | 66 | 69 | 66 |
| 29 | 77 | 77 | 84 | 78 | --- | 180 | 80 | 67 | 62 | 64 | 68 | 65 |
| 30 | 80 | 78 | 90 | 78 | --- | 160 | 79 | 67 | 62 | 63 | 66 | 65 |
| 31 | 78 | --- | 90 | 163 | --- | 150 | --- | 66 | --- | 64 | 66 | --- |
| TOTAL | 2412 | 2328 | 2358 | 2841 | 13164 | 85662 | 4478 | 2154 | 1913 | 1986 | 2785 | 1995 |
| MEAN | 77.8 | 77.6 | 76.1 | 91.6 | 470 | 2763 | 149 | 69.5 | 63.8 | 64.1 | 89.8 | 66.5 |
| MAX | 105 | 79 | 90 | 163 | 5800 | 18100 | 665 | 83 | 66 | 77 | 254 | 95 |
| MIN | 75 | 76 | 72 | 76 | 97 | 150 | 79 | 65 | 60 | 60 | 66 | 62 |
| AC-FT | 4780 | 4620 | 4680 | 5640 | 26110 | 169900 | 8880 | 4270 | 3790 | 3940 | 5520 | 3960 |

CAL YR 1977 TOTAL 29558 MEAN 81.0 MAX 372 MIN 69 AC-FT 58630
WTR YR 1978 TOTAL 124076 MEAN 340 MAX 18100 MIN 60 AC-FT 246100

09504000 VERDE RIVER NEAR CLARKDALE, AZ--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--March 1976 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | TUR-BID-ITY (JTU) | TUR-BID-ITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 27... | 1000 | 76 | 490 | 8.0 | 14.5 | 15 | -- | 9.0 |
| NOV | | | | | | | | |
| 29... | 1400 | 76 | 500 | 8.2 | 12.5 | 3 | -- | 10.6 |
| DEC | | | | | | | | |
| 21... | 1600 | 73 | 490 | 8.4 | 10.5 | 2 | -- | 10.0 |
| JAN | | | | | | | | |
| 25... | 1400 | 77 | 495 | 8.1 | 11.5 | 5 | -- | 10.3 |
| FEB | | | | | | | | |
| 24... | 1400 | 337 | 193 | 7.7 | 10.0 | 25 | -- | 11.6 |
| MAR | | | | | | | | |
| 18... | 1500 | 578 | 240 | 7.8 | 13.0 | 40 | -- | 8.9 |
| APR | | | | | | | | |
| 26... | 1300 | 82 | 500 | 8.1 | 20.0 | 1 | -- | 8.9 |
| MAY | | | | | | | | |
| 10... | 1800 | 68 | 495 | 8.2 | 21.0 | -- | 2.0 | 8.3 |
| JUN | | | | | | | | |
| 13... | 1330 | 65 | 490 | 8.0 | 25.0 | -- | -- | -- |
| JUL | | | | | | | | |
| 10... | 1300 | 63 | -- | 8.3 | 25.0 | -- | -- | 9.6 |
| AUG | | | | | | | | |
| 08... | 1200 | 70 | 490 | 8.3 | 25.5 | 70 | -- | 7.0 |
| SEP | | | | | | | | |
| 11... | 1500 | 58 | 475 | 8.2 | 24.0 | -- | -- | -- |

| DATE | COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | BICAR-BONATE (MG/L AS HCO3) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 27... | 38 | 240 | 0 | 53 | 26 | 24 | .7 | 2.0 | 310 |
| NOV | | | | | | | | | |
| 29... | K11 | 240 | 0 | 54 | 25 | 26 | .7 | 2.0 | 310 |
| DEC | | | | | | | | | |
| 21... | K2 | 190 | 6 | 43 | 20 | 7.0 | .2 | 1.1 | 220 |
| JAN | | | | | | | | | |
| 25... | K1 | 240 | 0 | 54 | 25 | 24 | .7 | 2.1 | 310 |
| FEB | | | | | | | | | |
| 24... | K11 | 92 | 2 | 23 | 8.5 | 6.7 | .3 | 1.1 | 110 |
| MAR | | | | | | | | | |
| 18... | K2 | 100 | 4 | 26 | 9.1 | 8.8 | .4 | 1.7 | 120 |
| APR | | | | | | | | | |
| 26... | K13 | 240 | 0 | 56 | 24 | 20 | .6 | 2.1 | 310 |
| MAY | | | | | | | | | |
| 10... | K13 | 240 | 0 | 55 | 24 | 21 | .6 | 2.5 | 310 |
| JUN | | | | | | | | | |
| 13... | K3 | 210 | 0 | 44 | 24 | 19 | .6 | 1.7 | 290 |
| JUL | | | | | | | | | |
| 10... | K10 | 210 | 0 | 43 | 24 | 22 | .7 | 2.2 | 260 |
| AUG | | | | | | | | | |
| 08... | 78 | 230 | 0 | 53 | 24 | 23 | .7 | 2.5 | 300 |
| SEP | | | | | | | | | |
| 11... | 61 | 220 | 0 | 52 | 23 | 21 | .6 | 2.2 | 280 |

K Based on non-ideal colony count.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | CARBONATE (MG/L AS CO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | SOLIDS, DISSOLVED (TONS PER AC-FT) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 27... | 0 | 6.7 | 13 | .3 | 20 | 288 | 299 | .39 |
| NOV | | | | | | | | |
| 29... | 0 | 9.1 | 15 | .3 | 20 | 286 | 305 | .39 |
| DEC | | | | | | | | |
| 21... | 2 | 7.2 | 7.7 | .1 | 16 | 198 | 213 | .27 |
| JAN | | | | | | | | |
| 25... | 0 | 9.0 | 11 | .2 | 20 | 284 | 300 | .39 |
| FEB | | | | | | | | |
| 24... | -- | 6.8 | 4.6 | .1 | 15 | 124 | 120 | .17 |
| MAR | | | | | | | | |
| 18... | 0 | 7.9 | 4.8 | .1 | 17 | 126 | 136 | .17 |
| APR | | | | | | | | |
| 26... | 0 | 9.1 | 13 | .2 | 15 | 260 | 293 | .35 |
| MAY | | | | | | | | |
| 10... | 0 | 10 | 13 | .2 | 17 | 266 | 296 | .36 |
| JUN | | | | | | | | |
| 13... | 0 | 9.7 | 12 | .2 | 17 | -- | 271 | .37 |
| JUL | | | | | | | | |
| 10... | 0 | 9.0 | 14 | .2 | 17 | -- | 260 | .35 |
| AUG | | | | | | | | |
| 08... | 1 | 8.1 | 12 | .2 | 21 | 273 | 294 | .37 |
| SEP | | | | | | | | |
| 11... | 0 | 10 | 14 | .2 | 18 | -- | 279 | .38 |

| DATE | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | NITROGEN, TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P) |
|---|---|---|---|---|---|---|
| OCT | | | | | | |
| 27... | .12 | .20 | .19 | .31 | .03 | .01 |
| NOV | | | | | | |
| 29... | .25 | .17 | .04 | .29 | .00 | .01 |
| DEC | | | | | | |
| 21... | .08 | .08 | -- | .09 | .10 | .00 |
| JAN | | | | | | |
| 25... | .20 | .28 | .05 | .25 | .04 | .01 |
| FEB | | | | | | |
| 24... | .11 | .01 | .08 | .19 | .11 | .01 |
| MAR | | | | | | |
| 18... | .23 | .24 | .25 | .48 | .20 | .08 |
| APR | | | | | | |
| 26... | .04 | .06 | .17 | .21 | .02 | .01 |
| MAY | | | | | | |
| 10... | .05 | .04 | .20 | .25 | .03 | .01 |
| JUN | | | | | | |
| 13... | .01 | .04 | .25 | .26 | .01 | .01 |
| JUL | | | | | | |
| 10... | .01 | .03 | .53 | .54 | .00 | .02 |
| AUG | | | | | | |
| 08... | .25 | .23 | .58 | .83 | .12 | .03 |
| SEP | | | | | | |
| 11... | .02 | .05 | .34 | .36 | .03 | .01 |

09504000 VERDE RIVER NEAR CLARKDALE, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) | BORON, TOTAL RECOV-ERABLE (UG/L AS B) | BORON, DIS-SOLVED (UG/L AS B) | CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) | IRON, TOTAL RECOV-ERABLE (UG/L AS FE) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 27... | 21 | 200 | 190 | 170 | <10 | 5 | <10 | 410 |
| NOV | | | | | | | | |
| 29... | 20 | 400 | 210 | 170 | 1 | 0 | 8 | 200 |
| DEC | | | | | | | | |
| 21... | 6 | 100 | 50 | 20 | 1 | -- | 43 | 130 |
| JAN | | | | | | | | |
| 25... | 18 | 200 | 170 | 150 | 1 | 10 | 5 | 210 |
| FEB | | | | | | | | |
| 24... | 5 | 100 | 130 | 50 | 0 | 10 | 7 | 1400 |
| MAR | | | | | | | | |
| 18... | 6 | 100 | 110 | 60 | 2 | 20 | 5 | 1700 |
| APR | | | | | | | | |
| 26... | 15 | 400 | 200 | 160 | 1 | 0 | 10 | 80 |
| MAY | | | | | | | | |
| 10... | 16 | 300 | 310 | 160 | 1 | 0 | 10 | 230 |
| JUN | | | | | | | | |
| 13... | 14 | 100 | 190 | 150 | 5 | 10 | 26 | 140 |
| JUL | | | | | | | | |
| 10... | 18 | 400 | 190 | 160 | 2 | 10 | 9 | 50 |
| AUG | | | | | | | | |
| 08... | 15 | 300 | 200 | 160 | 3 | 10 | 15 | 1700 |
| SEP | | | | | | | | |
| 11... | 16 | 400 | 180 | 190 | 11 | 0 | 11 | 300 |

| DATE | IRON, DIS-SOLVED (UG/L AS FE) | LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) | MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) | MANGA-NESE, DIS-SOLVED (UG/L AS MN) | MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) | SELE-NIUM, TOTAL (UG/L AS SE) | SILVER, TOTAL RECOV-ERABLE (UG/L AS AG) | ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 27... | 40 | <100 | 30 | 20 | .0 | 0 | <10 | 30 |
| NOV | | | | | | | | |
| 29... | 40 | 6 | 20 | 8 | .0 | 0 | 0 | 20 |
| DEC | | | | | | | | |
| 21... | 60 | 4 | 10 | 10 | .0 | 0 | 0 | 20 |
| JAN | | | | | | | | |
| 25... | 0 | 2 | 20 | 10 | .1 | 0 | 0 | 30 |
| FEB | | | | | | | | |
| 24... | 250 | 6 | 30 | 10 | .0 | 1 | 0 | 30 |
| MAR | | | | | | | | |
| 18... | 10 | 5 | 40 | 0 | .0 | 9 | 1 | 10 |
| APR | | | | | | | | |
| 26... | 40 | 5 | 20 | 0 | .0 | 0 | 0 | 40 |
| MAY | | | | | | | | |
| 10... | 20 | 7 | 20 | 0 | .0 | 0 | 0 | 40 |
| JUN | | | | | | | | |
| 13... | 0 | 5 | 30 | 0 | .0 | 0 | 0 | 50 |
| JUL | | | | | | | | |
| 10... | 40 | 16 | 10 | 10 | .0 | 0 | 0 | 20 |
| AUG | | | | | | | | |
| 08... | <10 | 21 | 90 | 5 | .1 | 0 | 0 | 30 |
| SEP | | | | | | | | |
| 11... | 10 | 76 | 20 | 10 | .0 | 0 | 0 | 20 |

< Actual value is known to be less than value shown.

09504000 VERDE RIVER NEAR CLARKDALE, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | CARBON, ORGANIC TOTAL (MG/L AS C) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS (UG/L) | LENGTH OF EXPO-SURE (DAYS) | PHYTO-PLANK-TON, TOTAL (CELLS PER ML) | CHLOR-A PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) | CHLOR-B PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) |
|---|---|---|---|---|---|---|---|
| OCT | | | | | | | |
| 27... | .7 | .00 | 0 | -- | -- | -- | -- |
| NOV | | | | | | | |
| 29... | 2.0 | .00 | 1 | -- | -- | -- | -- |
| DEC | | | | | | | |
| 21... | 1.7 | .00 | 3 | -- | -- | -- | -- |
| JAN | | | | | | | |
| 25... | .7 | .00 | 3 | -- | -- | -- | -- |
| FEB | | | | | | | |
| 24... | 5.3 | .00 | 1 | -- | -- | -- | -- |
| MAR | | | | | | | |
| 18... | 5.4 | .00 | 0 | -- | -- | -- | -- |
| APR | | | | | | | |
| 26... | .9 | .00 | 0 | -- | -- | -- | -- |
| MAY | | | | | | | |
| 10... | 1.6 | .00 | 0 | -- | 1100 | -- | -- |
| JUN | | | | | | | |
| 13... | 1.1 | .00 | 0 | 35 | -- | 10.0 | 2.22 |
| JUL | | | | | | | |
| 10... | 1.7 | .00 | 3 | -- | -- | -- | -- |
| AUG | | | | | | | |
| 08... | 5.0 | .00 | 1 | -- | -- | -- | -- |
| SEP | | | | | | | |
| 11... | 1.4 | .00 | 1 | -- | -- | -- | -- |

09504000 VERDE RIVER NEAR CLARKDALE, AZ--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

PHYTOPLANKTON

| | |
|---|---|
| DATE | MAY 10,78 |
| TIME | 1800 |
| TOTAL CELLS/ML | 1100 |
| DIVERSITY: DIVISION | 0.7 |
| .CLASS | 0.7 |
| ..ORDER | 1.4 |
| ...FAMILY | 2.8 |
| ....GENUS | 3.1 |

| ORGANISM | CELLS /ML | PER-CENT |
|---|---|---|
| CHLOROPHYTA (GREEN ALGAE) | | |
| .CHLOROPHYCEAE | | |
| ..VOLVOCALES | | |
| ...CHLAMYDOMONADACEAE | | |
| ....CARTERIA | 140 | 13 |
| ..ZYGNEMATALES | | |
| ...DESMIDIACEAE | | |
| ....CLOSTERIUM | 55 | 5 |
| CHRYSOPHYTA | | |
| .BACILLARIOPHYCEAE | | |
| ..CENTRALES | | |
| ...COSCINODISCACEAE | | |
| ....CYCLOTELLA | 120 | 11 |
| ....MELOSIRA | 70 | 6 |
| ..PENNALES | | |
| ...ACHNANTHACEAE | | |
| ....ACHNANTHES | 55 | 5 |
| ....COCCONEIS | 35 | 3 |
| ...CYMBELLACEAE | | |
| ....CYMBELLA | 110 | 10 |
| ...FRAGILARIACEAE | | |
| ....SYNEDRA | 35 | 3 |
| ...GOMPHONEMATACEAE | | |
| ....GOMPHONEMA | 18 | 2 |
| ...NAVICULACEAE | | |
| ....NAVICULA | 320# | 29 |
| ....STAURONEIS | 18 | 2 |
| ...NITZSCHIACEAE | | |
| ....NITZSCHIA | 120 | 11 |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

## 09504200 VERDE RIVER NEAR CORNVILLE, AZ

LOCATION.--Lat 34°40'58", long 111°57'58", in SE¼NE¼ sec.19, T.15 N., R.4 E., Yavapai County, Hydrologic Unit 15060202, on boundary between Coconino and Prescott National Forests, 1.8 mi (2.9 km) upstream from Oak Creek, 3.1 mi (5 km) southwest of Cornville, and 21.6 mi (34.8 km) downstream from gaging station 09504000 Verde River near Clarkdale.

DRAINAGE AREA.--3,650 $mi^2$ (9,450 $km^2$), approximately (includes 373 $mi^2$ or 966 $km^2$ in Aubrey Valley Playa, a closed basin).

PERIOD OF RECORD.--October 1976 to current year.

REMARKS.--Streamflow ungaged.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | TUR-BID-ITY (JTU) | TUR-BID-ITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 26... | 1100 | 72 | 550 | 8.3 | 15.0 | 30 | -- | 10.4 |
| NOV | | | | | | | | |
| 30... | 1000 | 64 | 560 | 8.2 | 9.0 | 9 | -- | 9.4 |
| DEC | | | | | | | | |
| 22... | 1000 | 77 | 560 | 8.1 | 7.5 | 9 | -- | 10.4 |
| JAN | | | | | | | | |
| 26... | 1000 | 84 | 560 | 8.4 | 6.5 | 25 | -- | 10.2 |
| FEB | | | | | | | | |
| 27... | 1300 | 270 | 268 | 7.7 | 10.5 | 40 | -- | 10.4 |
| MAR | | | | | | | | |
| 22... | 1000 | E750 | 260 | 8.0 | 13.0 | 150 | -- | 8.8 |
| APR | | | | | | | | |
| 27... | 0900 | 61 | 610 | 8.1 | 18.0 | 3 | -- | 9.8 |
| MAY | | | | | | | | |
| 11... | 0830 | 44 | 630 | 8.1 | 17.5 | -- | 7.0 | 8.1 |
| JUN | | | | | | | | |
| 14... | 1400 | 44 | 580 | 8.0 | 26.0 | -- | -- | -- |
| JUL | | | | | | | | |
| 11... | 1230 | 53 | 490 | 8.1 | 25.0 | -- | -- | 8.2 |
| AUG | | | | | | | | |
| 09... | 0900 | 47 | 610 | 8.2 | 27.0 | 70 | -- | -- |
| SEP | | | | | | | | |
| 12... | 1300 | 48 | 600 | 8.6 | 25.0 | -- | -- | 6.8 |

| DATE | COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | BICAR-BONATE (MG/L AS HCO3) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 26... | 80 | 270 | 8 | 54 | 33 | 27 | .7 | 2.3 | 320 |
| NOV | | | | | | | | | |
| 30... | 32 | 290 | 13 | 59 | 35 | 28 | .7 | 2.3 | 340 |
| DEC | | | | | | | | | |
| 22... | 32 | 280 | 13 | 56 | 33 | 27 | .7 | 2.2 | 320 |
| JAN | | | | | | | | | |
| 26... | 26 | 270 | 0 | 58 | 31 | 25 | .7 | 2.3 | 320 |
| FEB | | | | | | | | | |
| 27... | K230 | 140 | 12 | 31 | 14 | 9.6 | .4 | 1.3 | 150 |
| MAR | | | | | | | | | |
| 22... | 410 | 120 | 13 | 28 | 12 | 8.3 | .3 | 1.7 | 130 |
| APR | | | | | | | | | |
| 27... | K14 | 290 | 32 | 62 | 34 | 26 | .7 | 2.9 | 320 |
| MAY | | | | | | | | | |
| 11... | 49 | 310 | 36 | 65 | 37 | 31 | .8 | 2.9 | 340 |
| JUN | | | | | | | | | |
| 14... | K30 | 290 | 40 | 57 | 37 | 28 | .7 | 2.5 | 310 |
| JUL | | | | | | | | | |
| 11... | K160 | 310 | 44 | 60 | 38 | 28 | .7 | 3.2 | 320 |
| AUG | | | | | | | | | |
| 09... | 490 | 270 | 0 | 55 | 32 | 30 | .8 | 2.8 | 340 |
| SEP | | | | | | | | | |
| 12... | 220 | 280 | 7 | 59 | 32 | 28 | .7 | 3.5 | 320 |

E Estimated.
K Based on non-ideal colony count.

09504200 VERDE RIVER NEAR CORNVILLE, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | CARBONATE (MG/L AS CO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | SOLIDS, DISSOLVED (TONS PER AC-FT) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 26... | 0 | 33 | 14 | .3 | 21 | 338 | 343 | .46 |
| NOV | | | | | | | | |
| 30... | 0 | 36 | 17 | .2 | 20 | 343 | 365 | .47 |
| DEC | | | | | | | | |
| 22... | 0 | 36 | 15 | .2 | 20 | 341 | 348 | .46 |
| JAN | | | | | | | | |
| 26... | 6 | 35 | 13 | .3 | 21 | 327 | 351 | .44 |
| FEB | | | | | | | | |
| 27... | 0 | 16 | 6.1 | .1 | 16 | 165 | 168 | .22 |
| MAR | | | | | | | | |
| 22... | 0 | 20 | 5.6 | .1 | 17 | 143 | 158 | .19 |
| APR | | | | | | | | |
| 27... | 0 | 52 | 16 | .2 | 17 | 339 | 369 | .46 |
| MAY | | | | | | | | |
| 11... | 0 | 63 | 18 | .2 | 18 | 381 | 404 | .52 |
| JUN | | | | | | | | |
| 14... | -- | 46 | 14 | .2 | 20 | -- | 358 | .49 |
| JUL | | | | | | | | |
| 11... | 0 | 49 | 19 | .2 | 20 | -- | 376 | .51 |
| AUG | | | | | | | | |
| 09... | 0 | 39 | 16 | .2 | 25 | 357 | 370 | .49 |
| SEP | | | | | | | | |
| 12... | 6 | 37 | 17 | .3 | 23 | -- | 365 | .50 |

| DATE | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | NITROGEN, NH4 + ORG. TOT IN BOT MAT (MG/KG AS N) | NITROGEN, TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P) |
|---|---|---|---|---|---|---|---|
| OCT | | | | | | | |
| 26... | .05 | .07 | .18 | -- | .23 | .07 | .01 |
| NOV | | | | | | | |
| 30... | .02 | .00 | .07 | -- | .09 | .01 | .01 |
| DEC | | | | | | | |
| 22... | .11 | .10 | .10 | -- | .21 | .04 | .00 |
| JAN | | | | | | | |
| 26... | .24 | .26 | .04 | -- | .28 | .08 | .03 |
| FEB | | | | | | | |
| 27... | .15 | .01 | .15 | -- | .30 | .15 | .02 |
| MAR | | | | | | | |
| 22... | .27 | .30 | .36 | -- | .63 | .43 | .04 |
| APR | | | | | | | |
| 27... | .20 | .15 | .41 | -- | .61 | .04 | .01 |
| MAY | | | | | | | |
| 11... | .21 | .25 | .24 | 95 | .45 | .07 | .02 |
| JUN | | | | | | | |
| 14... | .04 | .05 | .38 | -- | .42 | .01 | .01 |
| JUL | | | | | | | |
| 11... | .07 | .19 | .68 | -- | .75 | .02 | .01 |
| AUG | | | | | | | |
| 09... | .40 | .39 | .57 | -- | .97 | .11 | .03 |
| SEP | | | | | | | |
| 12... | .13 | .23 | .54 | -- | .67 | .13 | .02 |

09504200 VERDE RIVER NEAR CORNVILLE, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | ARSENIC TOTAL (UG/L AS AS) | ARSENIC TOTAL IN BOTTOM MATERIAL (UG/G AS AS) | BARIUM, TOTAL RECOVERABLE (UG/L AS BA) | BARIUM, RECOV. FM BOTTOM MATERIAL (UG/G AS BA) | BORON, TOTAL RECOVERABLE (UG/L AS B) | BORON, DISSOLVED (UG/L AS B) | CADMIUM TOTAL RECOVERABLE (UG/L AS CD) | CADMIUM RECOV. FM BOTTOM MATERIAL (UG/G AS CD) | CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 26... | 22 | -- | 100 | -- | 240 | 180 | <10 | -- | 10 |
| NOV | | | | | | | | | |
| 30... | 17 | -- | 800 | -- | 250 | 180 | 0 | -- | 0 |
| DEC | | | | | | | | | |
| 22... | 15 | -- | 100 | -- | 200 | 170 | 1 | -- | 0 |
| JAN | | | | | | | | | |
| 26... | 45 | -- | 200 | -- | 170 | 160 | 0 | -- | 0 |
| FEB | | | | | | | | | |
| 27... | 6 | -- | 100 | -- | 130 | 70 | 0 | -- | 10 |
| MAR | | | | | | | | | |
| 22... | 14 | -- | 300 | -- | 80 | 70 | 0 | -- | 10 |
| APR | | | | | | | | | |
| 27... | 11 | -- | 500 | -- | 200 | 160 | 2 | -- | 0 |
| MAY | | | | | | | | | |
| 11... | 14 | 7 | 300 | 40 | 340 | 170 | 0 | 40 | 10 |
| JUN | | | | | | | | | |
| 14... | 14 | -- | 200 | -- | 230 | 170 | 1 | -- | 0 |
| JUL | | | | | | | | | |
| 11... | 17 | -- | 300 | -- | 240 | 180 | 3 | -- | 0 |
| AUG | | | | | | | | | |
| 09... | 14 | -- | 100 | -- | 240 | 180 | 4 | -- | 10 |
| SEP | | | | | | | | | |
| 12... | 14 | -- | 400 | -- | 260 | 270 | 2 | -- | 0 |

| DATE | CHROMIUM, RECOV. FM BOTTOM MATERIAL (UG/G) | COPPER, TOTAL RECOVERABLE (UG/L AS CU) | COPPER, RECOV. FM BOTTOM MATERIAL (UG/G AS CU) | IRON, TOTAL RECOVERABLE (UG/L AS FE) | IRON, DISSOLVED (UG/L AS FE) | LEAD, TOTAL RECOVERABLE (UG/L AS PB) | LEAD, RECOV. FM BOTTOM MATERIAL (UG/G AS PB) | MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) | MANGANESE, DISSOLVED (UG/L AS MN) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 26... | -- | 10 | -- | 1000 | 30 | <100 | -- | 60 | 20 |
| NOV | | | | | | | | | |
| 30... | -- | 9 | -- | 310 | 30 | 5 | -- | 30 | 8 |
| DEC | | | | | | | | | |
| 22... | -- | 19 | -- | 460 | 40 | 7 | -- | 30 | 20 |
| JAN | | | | | | | | | |
| 26... | -- | 19 | -- | 940 | 40 | 5 | -- | 40 | 20 |
| FEB | | | | | | | | | |
| 27... | -- | 18 | -- | 2100 | 20 | 9 | -- | 50 | 10 |
| MAR | | | | | | | | | |
| 22... | -- | 180 | -- | 8600 | 10 | 32 | -- | 240 | 10 |
| APR | | | | | | | | | |
| 27... | -- | 18 | -- | 130 | 30 | 25 | -- | 40 | 30 |
| MAY | | | | | | | | | |
| 11... | 2 | 24 | 28 | 500 | 10 | 7 | 30 | 70 | 30 |
| JUN | | | | | | | | | |
| 14... | -- | 11 | -- | 110 | 20 | 10 | -- | 30 | 10 |
| JUL | | | | | | | | | |
| 11... | -- | 12 | -- | 150 | 160 | 25 | -- | 40 | 40 |
| AUG | | | | | | | | | |
| 09... | -- | 31 | -- | 1700 | <10 | 32 | -- | 100 | 10 |
| SEP | | | | | | | | | |
| 12... | -- | 30 | -- | 1500 | 10 | 12 | -- | 80 | 10 |

< Actual value is known to be less than value shown.

09504200 VERDE RIVER NEAR CORNVILLE, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | MERCURY TOTAL RECOVERABLE (UG/L AS HG) | MERCURY RECOV. FM BOTTOM MATERIAL (UG/L AS HG) | SELENIUM, TOTAL (UG/L AS SE) | SELENIUM, TOTAL IN BOTTOM MATERIAL (UG/G) | SILVER, TOTAL RECOVERABLE (UG/L AS AG) | SILVER, RECOV. FM BOTTOM MATERIAL (UG/G AS AG) | ZINC, TOTAL RECOVERABLE (UG/L AS ZN) | ZINC, RECOV. FM BOTTOM MATERIAL (UG/G AS ZN) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 26... | .4 | -- | 1 | -- | <10 | -- | 50 | -- |
| NOV | | | | | | | | |
| 30... | .0 | -- | 1 | -- | 0 | -- | 10 | -- |
| DEC | | | | | | | | |
| 22... | .0 | -- | 1 | -- | 1 | -- | 20 | -- |
| JAN | | | | | | | | |
| 26... | .0 | -- | 1 | -- | 1 | -- | 40 | -- |
| FEB | | | | | | | | |
| 27... | .0 | -- | 0 | -- | 0 | -- | 50 | -- |
| MAR | | | | | | | | |
| 22... | .0 | -- | 3 | -- | 1 | -- | 280 | -- |
| APR | | | | | | | | |
| 27... | .0 | -- | 1 | -- | 0 | -- | 60 | -- |
| MAY | | | | | | | | |
| 11... | .0 | .03 | 1 | 0 | 0 | 0 | 90 | 93 |
| JUN | | | | | | | | |
| 14... | .0 | -- | 1 | -- | 0 | -- | 30 | -- |
| JUL | | | | | | | | |
| 11... | .0 | -- | 1 | -- | 0 | -- | 40 | -- |
| AUG | | | | | | | | |
| 09... | .0 | -- | 1 | -- | 4 | -- | 60 | -- |
| SEP | | | | | | | | |
| 12... | 4.5 | -- | 0 | -- | 0 | -- | 60 | -- |

| DATE | CARBON, ORGANIC TOTAL (MG/L AS C) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS (UG/L) | LENGTH OF EXPOSURE (DAYS) | PHYTOPLANKTON, TOTAL (CELLS PER ML) | PERIPHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M | PERIPHYTON BIOMASS ASH WEIGHT G/SQ M | CHLOR-A PERIPHYTON CHROMOGRAPHIC FLUOROM (MG/M2) | CHLOR-B PERIPHYTON CHROMOGRAPHIC FLUOROM (MG/M2) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 26... | 1.3 | .00 | 0 | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | | | | |
| 30... | 1.2 | .00 | 4 | -- | -- | -- | -- | -- | -- |
| DEC | | | | | | | | | |
| 22... | 1.2 | .00 | 2 | -- | -- | -- | -- | -- | -- |
| JAN | | | | | | | | | |
| 26... | 1.7 | .00 | 4 | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | | | | |
| 27... | 4.9 | .00 | 4 | -- | -- | -- | -- | -- | -- |
| MAR | | | | | | | | | |
| 22... | 7.8 | .00 | 0 | -- | -- | -- | -- | -- | -- |
| APR | | | | | | | | | |
| 27... | 1.7 | .00 | 0 | -- | -- | -- | -- | -- | -- |
| MAY | | | | | | | | | |
| 11... | 2.4 | .00 | 0 | 14 | 3400 | 20.6 | 17.6 | 13.7 | 1.59 |
| JUN | | | | | | | | | |
| 14... | 2.0 | .00 | 1 | -- | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | |
| 11... | 3.1 | .00 | 1 | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | |
| 09... | 2.4 | .00 | 2 | -- | -- | -- | -- | -- | -- |
| SEP | | | | | | | | | |
| 12... | 3.7 | .00 | 0 | -- | -- | -- | -- | -- | -- |

< Actual value is known to be less than value shown.

09504200 VERDE RIVER NEAR CORNVILLE, AZ--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

PHYTOPLANKTON

| | |
|---|---|
| DATE | MAY 11,78 |
| TIME | 0830 |
| TOTAL CELLS/ML | 3400 |
| DIVERSITY: DIVISION | 1.1 |
| .CLASS | 1.2 |
| ..ORDER | 1.7 |
| ...FAMILY | 2.6 |
| ....GENUS | 2.9 |

| ORGANISM | CELLS /ML | PER-CENT |
|---|---|---|
| CHLOROPHYTA (GREEN ALGAE) | | |
| .CHLOROPHYCEAE | | |
| ..CHLOROCOCCALES | | |
| ...MICRACTINIACEAE | | |
| ....GOLENKINIA | 370 | 11 |
| ....MICRACTINIUM | 450 | 14 |
| ..VOLVOCALES | | |
| ...CHLAMYDOMONADACEAE | | |
| ....CHLAMYDOMONAS | 110 | 3 |
| ..ZYGNEMATALES | | |
| ...DESMIDIACEAE | | |
| ....CLOSTERIUM | 110 | 3 |
| CHRYSOPHYTA | | |
| .BACILLARIOPHYCEAE | | |
| ..CENTRALES | | |
| ...COSCINODISCALEAE | | |
| ....CYCLOTELLA | 140 | 4 |
| ..PENNALES | | |
| ...GOMPHONEMATACEAE | | |
| ....GOMPHONEMA | 28 | 1 |
| ...NAVICULACEAE | | |
| ....NAVICULA | 1100# | 31 |
| ...NITZSCHIACEAE | | |
| ....NITZSCHIA | 370 | 11 |
| ...SURIRELLACEAE | | |
| ....SURIRELLA | 570# | 17 |
| .CHRYSOPHYCEAE | | |
| ..CHRYSOMONADALES | | |
| ...OCHROMONADACEAE | | |
| ....OCHROMONAS | 28 | 1 |
| EUGLENOPHYTA (EUGLENOIDS) | | |
| .EUGLENOPHYCEAE | | |
| ..EUGLENALES | | |
| ...EUGLENACEAE | | |
| ....EUGLENA | 57 | 2 |
| ....TRACHELOMONAS | 57 | 2 |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

## 09504500 OAK CREEK NEAR CORNVILLE, AZ

LOCATION.--Lat 34°45'56", long 111°53'24", in NW¼SE¼ sec.23, T.16N., R.4 E., Yavapai County, Hydrologic Unit 15060202, near left bank on downstream side of pier of county highway bridge, 0.2 mi (0.3 km) upstream from Page Springs, 4 mi (6 km) northeast of Cornville, and 15 mi (24 km) upstream from mouth.

DRAINAGE AREA.--357 $mi^2$ (925 $km^2$).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1940 to September 1945, April 1948 to current year.

REVISED RECORDS.--WSP 1149: 1948(M). WRD Ariz. 1974: 1973.

GAGE.--Water-stage recorder. Altitude of gage is 3,470 ft (1,058 m), from topographic map.

REMARKS.--Records good. Regulation during low flow by several small diversions for irrigation above station.

AVERAGE DISCHARGE.--35 years, 84.3 $ft^3/s$ (2.387 $m^3/s$), 61,080 acre-ft/yr (75.3 $hm^3/yr$); median of yearly mean discharges, 73 $ft^3/s$ (2.07 $m^3/s$), 52,900 acre-ft/yr (65 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,700 $ft^3/s$ (700 $m^3/s$) Sept. 5, 1970, gage height, 16.48 ft (5.023 m); minimum, 6 $ft^3/s$ (0.17 $m^3/s$) July 27, 1940.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1885, 23 ft (7.0 m) in March 1938, from floodmarks (upstream side of bridge).

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*) and peak discharges above base of 1,300 $ft^3/s$ (37 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) | Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Oct. 6 | 0845 | 1,620 | 45.9 | 6.47 | 1.972 | Mar. 1 | 0845 | *17,400 | 493 | 14.25 | 4.343 |
| Feb. 1 | 0300 | 1,610 | 45.6 | 6.18 | 1.884 | Mar. 5 | 1300 | 5,400 | 153 | 9.24 | 2.816 |
| Feb. 11 | 0300 | 1,700 | 48.1 | 6.32 | 1.926 | Mar. 22 | 0915 | 3,830 | 108 | 7.83 | 2.387 |

Minimum daily, 14 $ft^3/s$ (0.396 $m^3/s$) Sept. 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 29 | 30 | 36 | 36 | 869 | 11100 | 162 | 35 | 19 | 16 | 109 | 15 |
| 2 | 28 | 30 | 35 | 37 | 277 | 5770 | 576 | 45 | 18 | 17 | 54 | 20 |
| 3 | 27 | 30 | 34 | 37 | 246 | 4460 | 868 | 37 | 19 | 15 | 27 | 19 |
| 4 | 25 | 31 | 36 | 37 | 178 | 1090 | 376 | 34 | 22 | 15 | 20 | 18 |
| 5 | 24 | 31 | 37 | 37 | 143 | 2780 | 214 | 33 | 20 | 15 | 17 | 16 |
| 6 | 363 | 31 | 36 | 37 | 403 | 2040 | 137 | 32 | 19 | 16 | 17 | 14 |
| 7 | 61 | 45 | 35 | 37 | 624 | 924 | 93 | 31 | 20 | 16 | 16 | 59 |
| 8 | 43 | 32 | 34 | 37 | 644 | 624 | 79 | 29 | 19 | 16 | 16 | 25 |
| 9 | 38 | 32 | 35 | 37 | 380 | 555 | 112 | 26 | 19 | 16 | 15 | 19 |
| 10 | 35 | 32 | 36 | 100 | 292 | 555 | 245 | 25 | 19 | 17 | 16 | 18 |
| 11 | 30 | 33 | 37 | 60 | 621 | 560 | 275 | 25 | 19 | 17 | 18 | 21 |
| 12 | 26 | 33 | 37 | 45 | 212 | 686 | 149 | 25 | 18 | 24 | 56 | 20 |
| 13 | 26 | 33 | 30 | 37 | 176 | 574 | 91 | 23 | 18 | 19 | 44 | 18 |
| 14 | 25 | 33 | 30 | 37 | 300 | 412 | 64 | 22 | 19 | 18 | 26 | 19 |
| 15 | 24 | 33 | 36 | 290 | 182 | 386 | 51 | 21 | 19 | 22 | 21 | 24 |
| 16 | 25 | 33 | 36 | 227 | 137 | 273 | 45 | 20 | 18 | 29 | 17 | 24 |
| 17 | 25 | 34 | 36 | 399 | 117 | 237 | 44 | 19 | 17 | 24 | 15 | 23 |
| 18 | 26 | 34 | 41 | 209 | 100 | 309 | 39 | 21 | 19 | 20 | 16 | 22 |
| 19 | 25 | 34 | 36 | 127 | 89 | 371 | 35 | 23 | 17 | 17 | 15 | 20 |
| 20 | 26 | 34 | 36 | 157 | 85 | 536 | 31 | 22 | 17 | 17 | 16 | 20 |
| 21 | 30 | 34 | 36 | 85 | 104 | 555 | 31 | 23 | 16 | 19 | 15 | 21 |
| 22 | 29 | 35 | 35 | 77 | 184 | 1910 | 28 | 22 | 16 | 19 | 20 | 22 |
| 23 | 30 | 35 | 35 | 69 | 254 | 1550 | 27 | 21 | 16 | 17 | 17 | 23 |
| 24 | 31 | 35 | 35 | 61 | 305 | 759 | 27 | 19 | 16 | 17 | 17 | 25 |
| 25 | 29 | 35 | 36 | 54 | 340 | 485 | 25 | 20 | 16 | 18 | 49 | 25 |
| 26 | 29 | 35 | 38 | 49 | 359 | 362 | 23 | 20 | 16 | 31 | 21 | 23 |
| 27 | 29 | 35 | 39 | 47 | 372 | 309 | 27 | 21 | 16 | 41 | 17 | 24 |
| 28 | 29 | 35 | 41 | 48 | 4780 | 288 | 31 | 22 | 15 | 26 | 18 | 23 |
| 29 | 30 | 36 | 51 | 54 | --- | 230 | 30 | 20 | 16 | 19 | 16 | 21 |
| 30 | 30 | 36 | 44 | 73 | --- | 177 | 31 | 18 | 16 | 18 | 15 | 21 |
| 31 | 30 | --- | 40 | 404 | --- | 153 | --- | 17 | --- | 18 | 15 | --- |
| TOTAL | 1257 | 1009 | 1139 | 3041 | 12773 | 41020 | 3966 | 771 | 534 | 609 | 771 | 662 |
| MEAN | 40.5 | 33.6 | 36.7 | 98.1 | 456 | 1323 | 132 | 24.9 | 17.8 | 19.6 | 24.9 | 22.1 |
| MAX | 363 | 45 | 51 | 404 | 4780 | 11100 | 868 | 45 | 22 | 41 | 109 | 59 |
| MIN | 24 | 30 | 30 | 36 | 85 | 153 | 23 | 17 | 15 | 15 | 15 | 14 |
| AC-FT | 2490 | 2000 | 2260 | 6030 | 25340 | 81360 | 7870 | 1530 | 1060 | 1210 | 1530 | 1310 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1977 | TOTAL | 12165 | MEAN | 33.3 | MAX | 363 | MIN | 16 | AC-FT | 24130 |
| WTR YR 1978 | TOTAL | 67552 | MEAN | 185 | MAX | 11100 | MIN | 14 | AC-FT | 134000 |

NOTE.--No gage-height record Oct. 26 to Nov. 30, Feb. 28 to Mar. 1.

09504500 OAK CREEK NEAR CORNVILLE, AZ--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--June 1954 to September 1964, March 1976 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: June 1954 to September 1964.

INSTRUMENTATION.--Water temperature recorder from June 1954 to September 1964.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | TUR-BID-ITY (JTU) | TUR-BID-ITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 26... | 1500 | 27 | 360 | 8.2 | 18.5 | 5 | -- | 9.0 |
| NOV | | | | | | | | |
| 30... | 1400 | 35 | 375 | 8.3 | 12.0 | 3 | -- | 9.6 |
| DEC | | | | | | | | |
| 22... | 1300 | 35 | 350 | 8.3 | 8.0 | -- | -- | 10.7 |
| JAN | | | | | | | | |
| 26... | 1200 | 49 | 565 | 8.4 | 7.5 | 5 | -- | 10.9 |
| FEB | | | | | | | | |
| 27... | 1500 | 269 | 120 | 7.7 | 7.0 | 15 | -- | 10.6 |
| MAR | | | | | | | | |
| 01... | 1600 | 12200 | 100 | 7.7 | 6.0 | -- | -- | -- |
| 22... | 1100 | 2170 | 145 | 7.9 | 11.0 | 120 | -- | 9.4 |
| APR | | | | | | | | |
| 27... | 1000 | 28 | 410 | 8.1 | 18.0 | 1 | -- | 8.8 |
| MAY | | | | | | | | |
| 11... | 1000 | 25 | 365 | 8.0 | 19.5 | -- | .60 | 9.6 |
| JUN | | | | | | | | |
| 14... | 1030 | 20 | 400 | 8.3 | 29.0 | -- | -- | -- |
| JUL | | | | | | | | |
| 11... | 0900 | 18 | 420 | 8.2 | 23.0 | -- | -- | 7.8 |
| AUG | | | | | | | | |
| 09... | 1245 | 18 | 410 | 8.0 | 23.5 | 20 | -- | 7.7 |
| SEP | | | | | | | | |
| 12... | 0930 | 19 | 380 | 8.7 | 21.0 | -- | -- | -- |

| DATE | COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | BICAR-BONATE (MG/L AS HCO3) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 26... | 630 | 200 | 0 | 42 | 22 | 7.8 | .2 | 1.3 | 240 |
| NOV | | | | | | | | | |
| 30... | 64 | 200 | 2 | 45 | 21 | 7.9 | .2 | 1.1 | 240 |
| DEC | | | | | | | | | |
| 22... | K4 | 240 | 0 | 53 | 25 | 26 | .7 | 2.0 | 300 |
| JAN | | | | | | | | | |
| 26... | 34 | 170 | 10 | 38 | 18 | 6.3 | .2 | 1.0 | 190 |
| FEB | | | | | | | | | |
| 27... | 40 | 61 | 3 | 14 | 6.4 | 2.5 | .1 | .7 | 71 |
| MAR | | | | | | | | | |
| 01... | -- | 61 | 0 | 17 | 4.4 | 2.0 | .1 | 1.3 | 78 |
| 22... | 560 | 60 | 10 | 15 | 5.4 | 1.8 | .1 | .9 | 60 |
| APR | | | | | | | | | |
| 27... | 160 | 190 | 4 | 44 | 20 | 7.2 | .2 | 1.3 | 230 |
| MAY | | | | | | | | | |
| 11... | 1900 | -- | -- | -- | -- | -- | -- | -- | 230 |
| JUN | | | | | | | | | |
| 14... | 300 | 220 | 18 | 45 | 25 | .4 | .0 | 1.3 | 240 |
| JUL | | | | | | | | | |
| 11... | K1400 | 200 | 8 | 44 | 23 | 10 | .3 | 1.5 | 240 |
| AUG | | | | | | | | | |
| 09... | 670 | 190 | 0 | 43 | 21 | 12 | .4 | 1.5 | 250 |
| SEP | | | | | | | | | |
| 12... | 1200 | 210 | 9 | 48 | 21 | 9.0 | .3 | 1.5 | 240 |

K Based on non-ideal colony count.

09504500 OAK CREEK NEAR CORNVILLE, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | CARBONATE (MG/L AS CO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | SOLIDS, DISSOLVED (TONS PER AC-FT) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 26... | 0 | 2.8 | 9.5 | .1 | 16 | 215 | 220 | .29 |
| NOV | | | | | | | | |
| 30... | 0 | 3.9 | 9.4 | .1 | 16 | 208 | 223 | .28 |
| DEC | | | | | | | | |
| 22... | 0 | 12 | 14 | .2 | 20 | 288 | 301 | .39 |
| JAN | | | | | | | | |
| 26... | 2 | 4.6 | 6.4 | .1 | 15 | 168 | 185 | .23 |
| FEB | | | | | | | | |
| 27... | 0 | 5.2 | 1.8 | .1 | 12 | 76 | 78 | .10 |
| MAR | | | | | | | | |
| 01... | 0 | 4.3 | 3.4 | .1 | 7.6 | 80 | 79 | .11 |
| 22... | 0 | 5.4 | 2.4 | .1 | 10 | 61 | 71 | .08 |
| APR | | | | | | | | |
| 27... | 0 | 5.0 | 8.8 | .1 | 14 | 190 | 214 | .26 |
| MAY | | | | | | | | |
| 11... | 0 | 4.5 | 9.6 | .1 | 13 | 202 | -- | .27 |
| JUN | | | | | | | | |
| 14... | 0 | 4.3 | 12 | .1 | 16 | -- | 223 | .30 |
| JUL | | | | | | | | |
| 11... | 0 | 4.8 | 14 | .1 | 16 | -- | 232 | .32 |
| AUG | | | | | | | | |
| 09... | 0 | 8.7 | 14 | .1 | 16 | 226 | 240 | .31 |
| SEP | | | | | | | | |
| 12... | 0 | 4.9 | 13 | .1 | 16 | -- | 233 | .32 |

| DATE | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | NITROGEN, TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P) |
|---|---|---|---|---|---|---|
| OCT | | | | | | |
| 26... | .05 | .05 | .23 | .28 | .03 | .01 |
| NOV | | | | | | |
| 30... | .08 | .03 | .04 | .12 | .01 | .01 |
| DEC | | | | | | |
| 22... | .24 | .23 | .22 | .46 | .02 | .00 |
| JAN | | | | | | |
| 26... | .03 | .01 | .05 | .08 | .03 | .01 |
| FEB | | | | | | |
| 27... | .01 | .03 | .04 | .05 | .06 | .01 |
| MAR | | | | | | |
| 22... | .05 | .04 | .45 | .50 | .31 | .03 |
| APR | | | | | | |
| 27... | .05 | .05 | .18 | .23 | .03 | .01 |
| MAY | | | | | | |
| 11... | .04 | .05 | .67 | .71 | .01 | .01 |
| JUN | | | | | | |
| 14... | .05 | .10 | .26 | .31 | .01 | .01 |
| JUL | | | | | | |
| 11... | .11 | .12 | -- | -- | .00 | .02 |
| AUG | | | | | | |
| 09... | .10 | .13 | .51 | .61 | .06 | .01 |
| SEP | | | | | | |
| 12... | .07 | .14 | .52 | .59 | .07 | .01 |

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) | BORON, TOTAL RECOV-ERABLE (UG/L AS B) | BORON, DIS-SOLVED (UG/L AS B) | CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) | IRON, TOTAL RECOV-ERABLE (UG/L AS FE) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 26... | 9 | 100 | 60 | 30 | <10 | 5 | <10 | 150 |
| NOV | | | | | | | | |
| 30... | 9 | 300 | 60 | 40 | 0 | 0 | 2 | 120 |
| DEC | | | | | | | | |
| 22... | 17 | 200 | 190 | 170 | 0 | 0 | 15 | 150 |
| JAN | | | | | | | | |
| 26... | 7 | 100 | 30 | 20 | 0 | 0 | 8 | 270 |
| FEB | | | | | | | | |
| 27... | 2 | 0 | 80 | 20 | 0 | 10 | 5 | 680 |
| MAR | | | | | | | | |
| 01... | -- | -- | -- | 50 | -- | -- | -- | -- |
| 22... | 5 | 300 | 50 | 40 | 0 | 10 | 12 | 4500 |
| APR | | | | | | | | |
| 27... | 8 | 300 | 70 | 20 | 1 | 0 | 2 | 80 |
| MAY | | | | | | | | |
| 11... | 8 | 100 | 1100 | 30 | 0 | 0 | 5 | 120 |
| JUN | | | | | | | | |
| 14... | 9 | 200 | 90 | 60 | 4 | 0 | 5 | 70 |
| JUL | | | | | | | | |
| 11... | 13 | 300 | 70 | 40 | 1 | 10 | 8 | 210 |
| AUG | | | | | | | | |
| 09... | 10 | 100 | 90 | 30 | 9 | 0 | 8 | 490 |
| SEP | | | | | | | | |
| 12... | 8 | 400 | 70 | 20 | 3 | 0 | 7 | 940 |

| DATE | IRON, DIS-SOLVED (UG/L AS FE) | LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) | MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) | MANGA-NESE, DIS-SOLVED (UG/L AS MN) | MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) | SELE-NIUM, TOTAL (UG/L AS SE) | SILVER, TOTAL RECOV-ERABLE (UG/L AS AG) | ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 26... | 30 | <100 | 20 | 10 | .0 | 0 | <10 | 40 |
| NOV | | | | | | | | |
| 30... | 60 | 3 | 20 | 0 | .0 | 0 | 0 | 0 |
| DEC | | | | | | | | |
| 22... | 30 | 4 | 0 | 10 | .0 | 0 | 1 | 20 |
| JAN | | | | | | | | |
| 26... | 0 | 2 | 20 | 20 | .0 | 0 | 0 | 20 |
| FEB | | | | | | | | |
| 27... | 30 | 4 | 20 | 10 | .0 | 0 | 0 | 20 |
| MAR | | | | | | | | |
| 01... | 110 | -- | -- | -- | -- | -- | -- | -- |
| 22... | 60 | 4 | 160 | 10 | .0 | 3 | 0 | 20 |
| APR | | | | | | | | |
| 27... | 10 | 5 | 10 | 0 | .7 | 0 | 0 | 10 |
| MAY | | | | | | | | |
| 11... | -- | 5 | 20 | -- | .0 | 0 | 0 | 30 |
| JUN | | | | | | | | |
| 14... | 0 | 26 | 20 | 5 | .0 | 0 | 0 | 10 |
| JUL | | | | | | | | |
| 11... | 90 | 18 | 20 | 20 | .2 | 0 | 0 | 20 |
| AUG | | | | | | | | |
| 09... | <10 | 130 | 70 | 20 | .0 | 0 | 0 | 30 |
| SEP | | | | | | | | |
| 12... | 10 | 42 | 70 | 10 | .0 | 0 | 0 | 20 |

< Actual value is known to be less than value shown.

09504500 OAK CREEK NEAR CORNVILLE, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | CARBON, ORGANIC TOTAL (MG/L AS C) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS (UG/L) | PHYTO-PLANK-TON, TOTAL (CELLS PER ML) | PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M | PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M | CHLOR-A PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) | CHLOR-B PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 26... | 1.1 | .00 | 0 | -- | -- | -- | -- | -- |
| NOV | | | | | | | | |
| 30... | 2.1 | .00 | 4 | -- | -- | -- | -- | -- |
| DEC | | | | | | | | |
| 22... | .5 | .00 | 7 | -- | -- | -- | -- | -- |
| JAN | | | | | | | | |
| 26... | 1.9 | .00 | 6 | -- | -- | -- | -- | -- |
| FEB | | | | | | | | |
| 27... | 4.4 | .00 | 2 | -- | -- | -- | -- | -- |
| MAR | | | | | | | | |
| 22... | 14 | .00 | 2 | -- | -- | -- | -- | -- |
| APR | | | | | | | | |
| 27... | 2.2 | .00 | 2 | -- | -- | -- | -- | -- |
| MAY | | | | | | | | |
| 11... | 4.7 | .00 | 0 | 95 | 5.04 | 3.31 | 3.95 | 1.59 |
| JUN | | | | | | | | |
| 14... | 1.8 | .00 | 5 | -- | -- | -- | -- | -- |
| JUL | | | | | | | | |
| 11... | 2.1 | .00 | 1 | -- | -- | -- | -- | -- |
| AUG | | | | | | | | |
| 09... | 2.9 | .00 | 2 | -- | -- | -- | -- | -- |
| SEP | | | | | | | | |
| 12... | 3.1 | .00 | 1 | -- | -- | -- | -- | -- |

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

PHYTOPLANKTON

| | |
|---|---|
| DATE | MAY 11,78 |
| TIME | 1000 |
| TOTAL CELLS/ML | 95 |
| DIVERSITY: DIVISION | 0.7 |
| .CLASS | 0.7 |
| ..ORDER | 1.4 |
| ...FAMILY | 2.3 |
| ....GENUS | 2.3 |

| ORGANISM | CELLS /ML | PER-CENT |
|---|---|---|
| CHLOROPHYTA (GREEN ALGAE) | | |
| .CHLOROPHYCEAE | | |
| ..VOLVOCALES | | |
| ...CHLAMYDOMONADACEAE | | |
| ....CHLAMYDOMONAS | 19# | 20 |
| CHRYSOPHYTA | | |
| .BACILLARIOPHYCEAE | | |
| ..CENTRALES | | |
| ...COSCINODISCACEAE | | |
| ....CYCLOTELLA | 19# | 20 |
| ..PENNALES | | |
| ...ACHNANTHACEAE | | |
| ....COCCONEIS | 19# | 20 |
| ...CYMBELLACEAE | | |
| ....CYMBELLA | 19# | 20 |
| ...NAVICULACEAE | | |
| ....NAVICULA | 19# | 20 |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

## 09505200 WET BEAVER CREEK NEAR RIMROCK, AZ

LOCATION.--Lat 34°40'29", long 111°40'17", in NW¼SW¼ sec.24, T.15 N., R.6 E., Yavapai County, Hydrologic Unit 15060202, in Coconino National Forest, on right bank 4.5 mi (7.2 km) northeast of Rimrock and 5.7 mi (9.2 km) upstream from Red Tank Draw.

DRAINAGE AREA.--111 $mi^2$ (287 $km^2$).

PERIOD OF RECORD.--October 1961 to current year.

REVISED RECORDS.--WRD Ariz. 1969: Drainage area.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 4,020 ft (1,225 m), from topographic map.

REMARKS.--Records good. No known diversion or regulation above station.

AVERAGE DISCHARGE.--17 years, 32.4 $ft^3/s$ (0.918 $m^3/s$), 23,470 acre-ft/yr (28.9 $hm^3/yr$); median of yearly mean discharges, 26 $ft^3/s$ (0.74 $m^3/s$), 18,800 acre-ft/yr (23 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,670 $ft^3/s$ (217 $m^3/s$) Sept. 5, 1970, gage height, 12.41 ft (3.783 m); minimum, 5.4 $ft^3/s$ (0.15 $m^3/s$) Aug. 14, 1962, July 1, 2, 5, 8, 9, 12, 21, 1967.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, (*) and peak discharges above base of 600 $ft^3/s$ (17 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|
| Mar. 1 | 0930 | *4,360 | 123 | 10.46 | 3.188 |
| Mar. 2 | 2245 | 3,480 | 98.6 | 9.73 | 2.966 |
| Mar. 5 | 1845 | 2,250 | 63.7 | 8.51 | 2.594 |
| Mar. 13 | 1930 | 816 | 23.1 | 6.50 | 1.981 |
| Mar. 22 | 0530 | 2,450 | 69.4 | 8.71 | 2.655 |

Minimum daily, 5.8 $ft^3/s$ (0.16 $m^3/s$) Dec. 12-15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 6.9 | 7.0 | 6.4 | 7.1 | 174 | 2920 | 151 | 9.3 | 7.6 | 6.6 | 7.1 | 6.9 |
| 2 | 6.6 | 7.1 | 6.4 | 7.7 | 85 | 1930 | 144 | 9.2 | 7.6 | 6.6 | 7.3 | 6.9 |
| 3 | 6.6 | 7.1 | 6.4 | 7.3 | 55 | 1550 | 137 | 8.8 | 7.6 | 6.4 | 7.1 | 6.8 |
| 4 | 6.6 | 7.1 | 6.2 | 7.3 | 37 | 349 | 79 | 8.6 | 7.6 | 6.2 | 6.9 | 7.0 |
| 5 | 6.6 | 7.0 | 6.2 | 7.6 | 26 | 1100 | 56 | 8.6 | 7.6 | 6.2 | 7.1 | 7.0 |
| 6 | 9.9 | 7.6 | 6.2 | 7.6 | 77 | 634 | 43 | 8.7 | 7.6 | 6.4 | 7.1 | 7.0 |
| 7 | 7.8 | 7.7 | 6.2 | 7.6 | 156 | 303 | 34 | 8.6 | 7.6 | 6.2 | 7.1 | 6.9 |
| 8 | 7.1 | 7.5 | 6.0 | 7.9 | 96 | 216 | 30 | 8.1 | 7.3 | 6.4 | 7.1 | 6.9 |
| 9 | 6.7 | 7.3 | 6.0 | 8.0 | 73 | 180 | 36 | 8.0 | 7.3 | 6.6 | 7.1 | 7.0 |
| 10 | 6.6 | 7.3 | 6.0 | 8.9 | 53 | 154 | 48 | 8.0 | 7.3 | 6.4 | 7.1 | 6.9 |
| 11 | 6.3 | 7.3 | 6.0 | 8.6 | 105 | 187 | 80 | 7.9 | 7.3 | 6.2 | 7.3 | 6.9 |
| 12 | 6.0 | 7.1 | 5.8 | 8.0 | 70 | 472 | 46 | 7.9 | 7.3 | 6.2 | 9.0 | 7.0 |
| 13 | 6.2 | 7.1 | 5.8 | 7.9 | 63 | 416 | 30 | 7.8 | 7.1 | 6.2 | 7.9 | 7.0 |
| 14 | 6.2 | 7.1 | 5.8 | 7.6 | 60 | 326 | 22 | 7.8 | 7.2 | 6.2 | 7.3 | 7.1 |
| 15 | 6.2 | 7.1 | 5.8 | 10 | 50 | 164 | 16 | 7.8 | 7.1 | 6.3 | 7.3 | 7.2 |
| 16 | 6.4 | 6.9 | 6.0 | 15 | 48 | 119 | 13 | 7.9 | 7.1 | 6.4 | 6.9 | 7.2 |
| 17 | 6.4 | 6.9 | 6.0 | 47 | 36 | 120 | 11 | 7.9 | 7.1 | 6.2 | 6.6 | 7.1 |
| 18 | 6.4 | 6.9 | 6.0 | 51 | 27 | 144 | 9.8 | 7.9 | 7.1 | 6.2 | 6.6 | 7.0 |
| 19 | 6.4 | 6.9 | 6.2 | 23 | 21 | 143 | 9.4 | 7.9 | 7.1 | 6.2 | 6.7 | 7.0 |
| 20 | 6.4 | 6.7 | 6.1 | 20 | 19 | 210 | 9.1 | 7.6 | 7.1 | 6.4 | 6.6 | 7.0 |
| 21 | 6.5 | 6.7 | 6.0 | 22 | 52 | 239 | 9.0 | 7.6 | 6.9 | 6.6 | 6.6 | 7.0 |
| 22 | 6.6 | 6.7 | 6.4 | 16 | 176 | 1210 | 9.0 | 7.6 | 6.9 | 6.6 | 6.7 | 7.0 |
| 23 | 6.8 | 6.8 | 6.4 | 12 | 260 | 851 | 9.0 | 7.6 | 6.9 | 6.6 | 6.6 | 7.0 |
| 24 | 6.8 | 6.8 | 6.4 | 11 | 187 | 296 | 9.0 | 7.6 | 6.9 | 6.6 | 6.7 | 7.0 |
| 25 | 6.8 | 6.6 | 6.7 | 9.0 | 144 | 228 | 8.9 | 7.9 | 6.9 | 6.6 | 6.6 | 7.0 |
| 26 | 6.7 | 6.6 | 6.7 | 8.2 | 135 | 188 | 8.9 | 7.6 | 6.9 | 6.6 | 6.5 | 7.1 |
| 27 | 6.7 | 6.7 | 7.1 | 8.0 | 110 | 192 | 8.9 | 7.6 | 6.6 | 6.6 | 6.5 | 7.0 |
| 28 | 6.8 | 6.5 | 7.1 | 7.7 | 1990 | 206 | 8.6 | 7.6 | 6.9 | 6.4 | 6.6 | 7.0 |
| 29 | 7.1 | 6.2 | 7.1 | 7.4 | --- | 172 | 8.6 | 7.6 | 6.9 | 6.6 | 6.6 | 7.0 |
| 30 | 7.5 | 6.4 | 7.3 | 9.2 | --- | 144 | 8.7 | 7.6 | 6.6 | 6.6 | 6.6 | 7.0 |
| 31 | 7.2 | --- | 7.2 | 99 | --- | 144 | --- | 7.6 | --- | 6.9 | 6.8 | --- |
| TOTAL | 209.8 | 208.7 | 195.9 | 484.6 | 4385 | 15507 | 1092.9 | 248.2 | 215.0 | 199.2 | 216.0 | 209.9 |
| MEAN | 6.77 | 6.96 | 6.32 | 15.6 | 157 | 500 | 36.4 | 8.01 | 7.17 | 6.43 | 6.97 | 7.00 |
| MAX | 9.9 | 7.7 | 7.3 | 99 | 1990 | 2920 | 151 | 9.3 | 7.6 | 6.9 | 9.0 | 7.2 |
| MIN | 6.0 | 6.2 | 5.8 | 7.1 | 19 | 119 | 8.6 | 7.6 | 6.6 | 6.2 | 6.5 | 6.8 |
| AC-FT | 416 | 414 | 389 | 961 | 8700 | 30760 | 2170 | 492 | 426 | 395 | 428 | 416 |

CAL YR 1977 TOTAL 2767.5 MEAN 7.58 MAX 102 MIN 5.8 AC-FT 5490
WTR YR 1978 TOTAL 23172.2 MEAN 63.5 MAX 2920 MIN 5.8 AC-FT 45960

## 09505250 RED TANK DRAW NEAR RIMROCK, AZ

LOCATION.--Lat 34°41'43", long 111°42'49", in SE¼NE¼ sec.16, T.15 N., R.6 E., Yavapai County, Hydrologic Unit 15060202, in Coconino National Forest, on left bank 2.5 mi (4.0 km) downstream from confluence of Rarick and Mullican Canyons, and 3.5 mi (5.6 km) northeast of Rimrock.

DRAINAGE AREA.--49.4 $mi^2$ (128 $km^2$).

PERIOD OF RECORD.--April 1957 to Sept. 1978 (discontinued).

GAGE.--Water-stage recorder. Concrete control prior to Sept. 5, 1970. Altitude of gage is 3,920 ft (1,195 m), from topographic map. Prior to Sept. 5, 1970, at datum 0.29 ft (0.088 m) higher.

REMARKS.--Records good except those for period of missing record, May 13 to June 13, which are poor.

AVERAGE DISCHARGE.--21 years, 7.24 $ft^3/s$ (0.205 $m^3/s$), 5,240 acre-ft/yr (6.46 $hm^3/yr$); median of yearly mean discharges, 4.6 $ft^3/s$ (0.13 $m^3/s$) 3,300 acre-ft/yr (4.1 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,500 $ft^3/s$ (297 $m^3/s$) Sept. 5, 1970, recorded gage height, 12.69 ft (3.868 m), about 13.3 ft (4.05 m), from profile past gage, from rating curve extended above 1,100 $ft^3/s$ (31 $m^3/s$), on basis of slope-area measurement of peak flow; no flow for many days in each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*) and peak discharges above base of 200 $ft^3/s$ (5.7 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) | Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Jan. 15 | 1645 | 459 | 13.0 | 5.67 | 1.728 | Mar. 1 | 0945 | *2,600 | 73.6 | 8.74 | 2.664 |
| Jan. 31 | 2000 | 348 | 9.85 | 5.33 | 1.625 | Mar. 5 | 1130 | 881 | 24.9 | 6.60 | 2.012 |
| Feb. 11 | 0015 | 588 | 16.7 | 5.94 | 1.810 | Mar. 11 | 2400 | 688 | 19.5 | 6.22 | 1.896 |
| Feb. 23 | 1930 | 441 | 12.5 | 5.54 | 1.689 | Mar. 22 | 2300 | 1,460 | 41.3 | 7.54 | 2.298 |

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .00 | .00 | .00 | .00 | 150 | 1260 | .73 | .29 | .00 | .00 | .00 | .00 |
| 2 | .00 | .00 | .00 | .00 | 31 | 600 | .66 | .26 | .00 | .00 | .00 | .00 |
| 3 | .00 | .00 | .00 | .00 | 10 | 584 | 13 | .29 | .00 | .00 | .00 | .00 |
| 4 | .00 | .00 | .00 | .00 | 4.5 | 52 | 6.5 | .28 | .00 | .00 | .00 | .00 |
| 5 | .00 | .00 | .00 | .00 | 2.5 | 342 | 2.6 | .26 | .00 | .00 | .00 | .00 |
| 6 | .00 | .00 | .00 | .00 | 11 | 205 | 1.4 | .26 | .00 | .00 | .00 | .00 |
| 7 | 1.6 | .00 | .00 | .00 | 48 | 78 | .90 | .26 | .00 | .00 | .00 | .00 |
| 8 | .70 | .00 | .00 | .00 | 24 | 26 | .85 | .25 | .00 | .00 | .00 | .00 |
| 9 | .36 | .00 | .00 | .00 | 12 | 11 | .76 | .25 | .00 | .00 | .00 | .00 |
| 10 | .28 | .00 | .00 | .00 | 11 | 5.7 | .66 | .23 | .00 | .00 | .00 | .00 |
| 11 | .23 | .00 | .00 | .01 | 158 | 104 | 2.2 | .22 | .00 | .00 | .00 | .00 |
| 12 | .18 | .00 | .00 | .01 | 55 | 327 | 1.7 | .22 | .00 | .00 | .00 | .00 |
| 13 | .17 | .00 | .00 | .00 | 42 | 168 | 1.1 | .21 | .00 | .00 | .00 | .00 |
| 14 | .14 | .00 | .00 | .00 | 67 | 148 | .81 | .20 | .00 | .00 | .00 | .00 |
| 15 | .12 | .00 | .00 | 103 | 30 | 62 | .68 | .20 | .00 | .00 | .00 | .00 |
| 16 | .09 | .00 | .00 | 35 | 21 | 28 | .65 | .10 | .00 | .00 | .00 | .00 |
| 17 | .08 | .00 | .00 | 166 | 14 | 16 | .59 | .10 | .00 | .00 | .00 | .00 |
| 18 | .07 | .00 | .00 | 61 | 7.9 | 13 | .51 | .10 | .00 | .00 | .00 | .00 |
| 19 | .07 | .00 | .00 | 29 | 4.6 | 7.6 | .47 | .10 | .00 | .00 | .00 | .00 |
| 20 | .06 | .00 | .00 | 28 | 3.1 | 6.2 | .45 | .10 | .00 | .00 | .00 | .00 |
| 21 | .06 | .00 | .00 | 26 | 19 | 4.4 | .40 | .00 | .00 | .00 | .00 | .00 |
| 22 | .04 | .00 | .00 | 12 | 116 | 438 | .38 | .00 | .00 | .00 | .00 | .00 |
| 23 | .02 | .00 | .00 | 5.4 | 168 | 417 | .38 | .00 | .00 | .00 | .00 | .00 |
| 24 | .00 | .00 | .00 | 3.0 | 110 | 63 | .36 | .00 | .00 | .00 | .00 | .00 |
| 25 | .00 | .00 | .00 | 1.4 | 68 | 17 | .36 | .00 | .00 | .00 | .00 | .00 |
| 26 | .00 | .00 | .00 | .89 | 43 | 6.5 | .34 | .00 | .00 | .00 | .00 | .00 |
| 27 | .00 | .00 | .00 | .73 | 46 | 3.3 | .32 | .00 | .00 | .00 | .00 | .00 |
| 28 | .00 | .00 | .00 | .63 | 924 | 1.8 | .29 | .00 | .00 | .00 | .00 | .00 |
| 29 | .00 | .00 | .00 | 2.7 | --- | 1.2 | .26 | .00 | .00 | .00 | .00 | .00 |
| 30 | .00 | .00 | .00 | 6.7 | --- | .85 | .28 | .00 | .00 | .00 | .00 | .00 |
| 31 | .00 | --- | .00 | 94 | --- | .69 | --- | .00 | --- | .00 | .00 | --- |
| TOTAL | 4.27 | .00 | .00 | 575.47 | 2200.6 | 4997.24 | 40.59 | 4.18 | .00 | .00 | .00 | .00 |
| MEAN | .14 | .000 | .000 | 18.6 | 78.6 | 161 | 1.35 | .13 | .000 | .000 | .000 | .000 |
| MAX | 1.6 | .00 | .00 | 166 | 924 | 1260 | 13 | .29 | .00 | .00 | .00 | .00 |
| MIN | .00 | .00 | .00 | .00 | 2.5 | .69 | .26 | .00 | .00 | .00 | .00 | .00 |
| AC-FT | 8.5 | .00 | .00 | 1140 | 4360 | 9910 | 81 | 8.3 | .00 | .00 | .00 | .00 |

CAL YR 1977 TOTAL 36.09 MEAN .099 MAX 7.6 MIN .00 AC-FT 72
WTR YR 1978 TOTAL 7822.35 MEAN 21.4 MAX 1260 MIN .00 AC-FT 15520

NOTE.--No gage-height record May 13 to June 13.

## 09505260 MONTEZUMA WELL OUTLET NEAR RIMROCK, AZ

LOCATION.--Lat 34°38'53", long 111°45'02", in NE¼, sec.31, T.15 N., R.6 E., Yavapai County, Hydrologic Unit 15060202, in Montezuma Castle National Monument, on left bank 100 ft (30.5 m) downstream from outlet of Montezuma Well, and 2.5 mi (4.0 km) northeast of Rimrock.

PERIOD OF RECORD.--1948-59, 1961, 1976 (three or less discharge measurements each year); April 1977 to current year.

GAGE.--Water-stage recorder and sharp-crested weir. Altitude of gage is 3,560 ft (1,085 m), from topographic map.

REMARKS.--Records fair. No diversions between outlet and gage since June 1977 when gate was removed.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 3.01 $ft^3/s$ (0.085 $m^3/s$) Apr. 12, 1978, minimum observed, 1.43 $ft^3/s$ (0.040 $m^3/s$) June 9, 1961.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 2.9 $ft^3/s$ (0.082 $m^3/s$) Mar. 23, 27, Apr. 17-28; minimum daily, 2.3 $ft^3/s$ (0.065 $m^3/s$) Dec. 11-14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2.6 | 2.4 | 2.4 | 2.6 | 2.7 | 2.8 | 2.8 | 2.8 | 2.7 | 2.6 | 2.6 | 2.6 |
| 2 | 2.6 | 2.4 | 2.4 | 2.6 | 2.7 | 2.8 | 2.8 | 2.8 | 2.7 | 2.6 | 2.6 | 2.6 |
| 3 | 2.6 | 2.4 | 2.4 | 2.6 | 2.7 | 2.8 | 2.8 | 2.8 | 2.7 | 2.6 | 2.6 | 2.6 |
| 4 | 2.6 | 2.4 | 2.4 | 2.6 | 2.7 | 2.8 | 2.8 | 2.8 | 2.7 | 2.6 | 2.6 | 2.6 |
| 5 | 2.6 | 2.4 | 2.4 | 2.6 | 2.7 | 2.8 | 2.8 | 2.8 | 2.7 | 2.6 | 2.6 | 2.6 |
| 6 | 2.5 | 2.4 | 2.4 | 2.6 | 2.7 | 2.8 | 2.8 | 2.8 | 2.7 | 2.6 | 2.6 | 2.7 |
| 7 | 2.5 | 2.4 | 2.4 | 2.6 | 2.7 | 2.8 | 2.8 | 2.8 | 2.7 | 2.6 | 2.6 | 2.6 |
| 8 | 2.5 | 2.4 | 2.4 | 2.7 | 2.7 | 2.8 | 2.8 | 2.8 | 2.7 | 2.6 | 2.6 | 2.7 |
| 9 | 2.5 | 2.4 | 2.4 | 2.7 | 2.7 | 2.8 | 2.8 | 2.8 | 2.7 | 2.6 | 2.6 | 2.7 |
| 10 | 2.5 | 2.4 | 2.4 | 2.7 | 2.7 | 2.8 | 2.8 | 2.8 | 2.7 | 2.6 | 2.6 | 2.7 |
| 11 | 2.4 | 2.4 | 2.5 | 2.7 | 2.7 | 2.8 | 2.8 | 2.8 | 2.7 | 2.6 | 2.6 | 2.7 |
| 12 | 2.4 | 2.4 | 2.5 | 2.7 | 2.7 | 2.8 | 2.8 | 2.8 | 2.7 | 2.6 | 2.6 | 2.7 |
| 13 | 2.4 | 2.4 | 2.5 | 2.7 | 2.7 | 2.8 | 2.8 | 2.8 | 2.7 | 2.6 | 2.6 | 2.7 |
| 14 | 2.4 | 2.4 | 2.5 | 2.7 | 2.7 | 2.8 | 2.8 | 2.8 | 2.7 | 2.6 | 2.6 | 2.7 |
| 15 | 2.4 | 2.4 | 2.4 | 2.7 | 2.7 | 2.8 | 2.8 | 2.8 | 2.7 | 2.6 | 2.6 | 2.7 |
| 16 | 2.4 | 2.4 | 2.4 | 2.7 | 2.7 | 2.8 | 2.8 | 2.8 | 2.6 | 2.6 | 2.6 | 2.7 |
| 17 | 2.4 | 2.4 | 2.4 | 2.7 | 2.7 | 2.8 | 2.9 | 2.8 | 2.6 | 2.6 | 2.6 | 2.7 |
| 18 | 2.4 | 2.4 | 2.4 | 2.7 | 2.7 | 2.8 | 2.9 | 2.8 | 2.6 | 2.6 | 2.6 | 2.7 |
| 19 | 2.4 | 2.4 | 2.4 | 2.7 | 2.7 | 2.8 | 2.9 | 2.8 | 2.6 | 2.6 | 2.6 | 2.6 |
| 20 | 2.4 | 2.4 | 2.4 | 2.7 | 2.7 | 2.8 | 2.9 | 2.8 | 2.6 | 2.6 | 2.6 | 2.6 |
| 21 | 2.4 | 2.4 | 2.4 | 2.7 | 2.7 | 2.8 | 2.9 | 2.8 | 2.6 | 2.6 | 2.6 | 2.7 |
| 22 | 2.4 | 2.4 | 2.4 | 2.7 | 2.7 | 2.8 | 2.9 | 2.8 | 2.6 | 2.6 | 2.6 | 2.7 |
| 23 | 2.4 | 2.4 | 2.5 | 2.7 | 2.7 | 2.9 | 2.9 | 2.8 | 2.6 | 2.6 | 2.6 | 2.7 |
| 24 | 2.4 | 2.4 | 2.5 | 2.7 | 2.7 | 2.8 | 2.9 | 2.8 | 2.6 | 2.6 | 2.6 | 2.6 |
| 25 | 2.4 | 2.4 | 2.5 | 2.7 | 2.7 | 2.8 | 2.9 | 2.8 | 2.6 | 2.7 | 2.6 | 2.5 |
| 26 | 2.4 | 2.4 | 2.5 | 2.7 | 2.7 | 2.8 | 2.9 | 2.8 | 2.6 | 2.6 | 2.6 | 2.5 |
| 27 | 2.4 | 2.4 | 2.5 | 2.7 | 2.7 | 2.9 | 2.9 | 2.8 | 2.6 | 2.6 | 2.6 | 2.6 |
| 28 | 2.4 | 2.4 | 2.5 | 2.7 | 2.7 | 2.8 | 2.9 | 2.8 | 2.6 | 2.6 | 2.6 | 2.6 |
| 29 | 2.4 | 2.4 | 2.5 | 2.7 | --- | 2.8 | 2.8 | 2.7 | 2.6 | 2.6 | 2.6 | 2.6 |
| 30 | 2.4 | 2.4 | 2.5 | 2.7 | --- | 2.8 | 2.8 | 2.7 | 2.6 | 2.6 | 2.6 | 2.6 |
| 31 | 2.4 | --- | 2.5 | 2.7 | --- | 2.8 | --- | 2.7 | --- | 2.6 | 2.6 | --- |
| TOTAL | 75.9 | 72.0 | 74.9 | 83.0 | 75.6 | 87.0 | 85.2 | 86.5 | 79.5 | 80.7 | 80.6 | 79.3 |
| MEAN | 2.45 | 2.40 | 2.42 | 2.68 | 2.70 | 2.81 | 2.84 | 2.79 | 2.65 | 2.60 | 2.60 | 2.64 |
| MAX | 2.6 | 2.4 | 2.5 | 2.7 | 2.7 | 2.9 | 2.9 | 2.8 | 2.7 | 2.7 | 2.6 | 2.7 |
| MIN | 2.4 | 2.4 | 2.5 | 2.6 | 2.7 | 2.8 | 2.8 | 2.7 | 2.6 | 2.6 | 2.6 | 2.5 |
| AC-FT | 151 | 143 | 149 | 165 | 150 | 173 | 169 | 172 | 158 | 160 | 160 | 157 |

WTR YR 1978 TOTAL 960.2 MEAN 2.63 MAX 2.9 MIN 2.5 AC-FT 1900

## 09505300 RATTLESNAKE CANYON NEAR RIMROCK, AZ

LOCATION.--Lat 34°46'01", long 111°40'23", in NW¼SW¼ sec.24, T.16 N., R.6 E., Yavapai County, Hydrologic Unit 15060202, in Coconino National Forest, on left bank 2.6 mi (4.2 km) upstream from mouth, 7 mi (11 km) northeast of Beaver Creek Ranger Station, and 9 mi (14 km) northeast of Rimrock.

DRAINAGE AREA.--24.6 $mi^2$ (63.7 $km^2$).

PERIOD OF RECORD.--June 1957 to current year.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 4,870 ft (1,484 m), from topographic map.

REMARKS.--Records fair.

AVERAGE DISCHARGE.--21 years, 7.37 $ft^3/s$ (0.209 $m^3/s$), 5,340 acre-ft/yr (6.58 $hm^3/yr$); median of yearly mean discharges, 5.1 $ft^3/s$ (0.14 $m^3/s$), 3,700 acre-ft/yr (4.6 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,590 $ft^3/s$ (102 $m^3/s$) Sept. 5, 1970, gage height, 11.50 ft (3.505 m), from rating curve extended above 1,100 $ft^3/s$ (31 $m^3/s$) on basis of computation of peak flow over weir at gage height 8.50 ft (2.591 m) and slope-area measurement at gage height 11.50 ft (3.505 m); no flow for many days in each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*) and peak discharges above base of 150 $ft^3/s$ (4.2 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) | Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Jan. 31 | 1900 | 706 | 20.0 | 6.85 | 2.088 | Mar. 5 | 1100 | 651 | 18.4 | 6.66 | 2.030 |
| Feb. 23 | 1815 | 193 | 5.47 | 4.65 | 1.417 | Mar. 11 | 2315 | 361 | 10.7 | 5.59 | 1.704 |
| Mar. 1 | 1015 | *1,610 | 45.6 | 9.00 | 2.743 | Mar. 22 | 0500 | 919 | 26.0 | 7.50 | 2.286 |

No flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .00 | .00 | .00 | .00 | 109 | 813 | 51 | .00 | .00 | .00 | .00 | .00 |
| 2 | .00 | .00 | .00 | .00 | 26 | 545 | 100 | .00 | .00 | .00 | .00 | .00 |
| 3 | .00 | .00 | .00 | .00 | 17 | 329 | 90 | .00 | .00 | .00 | .00 | .00 |
| 4 | .00 | .00 | .00 | .00 | 14 | 80 | 30 | .00 | .00 | .00 | .00 | .00 |
| 5 | .00 | .00 | .00 | .00 | 11 | 322 | 20 | .00 | .00 | .00 | .00 | .00 |
| 6 | 5.0 | .00 | .00 | .00 | 66 | 135 | 10 | .00 | .00 | .00 | .00 | .00 |
| 7 | 1.0 | .00 | .00 | .00 | 48 | 60 | 5.0 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | 54 | 43 | 10 | .00 | .00 | .00 | .00 | .00 |
| 9 | .00 | .00 | .00 | .00 | 23 | 42 | 20 | .00 | .00 | .00 | .00 | .00 |
| 10 | .00 | .00 | .00 | .00 | 24 | 41 | 30 | .00 | .00 | .00 | .00 | .00 |
| 11 | .00 | .00 | .00 | .00 | 48 | 130 | 20 | .00 | .00 | .00 | .00 | .00 |
| 12 | .00 | .00 | .00 | .00 | 32 | 154 | 10 | .00 | .00 | .00 | .00 | .00 |
| 13 | .00 | .00 | .00 | .00 | 23 | 92 | 8.0 | .00 | .00 | .00 | .00 | .00 |
| 14 | .00 | .00 | .00 | .00 | 23 | 101 | 5.0 | .00 | .00 | .00 | .00 | .00 |
| 15 | .00 | .00 | .00 | 58 | 18 | 51 | 3.0 | .00 | .00 | .00 | .00 | .00 |
| 16 | .00 | .00 | .00 | 15 | 16 | 37 | 2.0 | .00 | .00 | .00 | .00 | .00 |
| 17 | .00 | .00 | .00 | 95 | 11 | 42 | 1.0 | .00 | .00 | .00 | .00 | .00 |
| 18 | .00 | .00 | .00 | 23 | 8.7 | 48 | .00 | .00 | .00 | .00 | .00 | .00 |
| 19 | .00 | .00 | .00 | 17 | 7.9 | 54 | .00 | .00 | .00 | .00 | .00 | .00 |
| 20 | .00 | .00 | .00 | 13 | 16 | 66 | .00 | .00 | .00 | .00 | .00 | .00 |
| 21 | .00 | .00 | .00 | 9.0 | 44 | 66 | .00 | .00 | .00 | .00 | .00 | .00 |
| 22 | .00 | .00 | .00 | 7.2 | 60 | 326 | .00 | .00 | .00 | .00 | .00 | .00 |
| 23 | .00 | .00 | .00 | 6.4 | 66 | 189 | .00 | .00 | .00 | .00 | .00 | .00 |
| 24 | .00 | .00 | .00 | 1.6 | 47 | 75 | .00 | .00 | .00 | .00 | .00 | .00 |
| 25 | .00 | .00 | .00 | .60 | 35 | 61 | .00 | .00 | .00 | .00 | .00 | .00 |
| 26 | .00 | .00 | .00 | .32 | 29 | 52 | .00 | .00 | .00 | .00 | .00 | .00 |
| 27 | .00 | .00 | .00 | .80 | 93 | 53 | .00 | .00 | .00 | .00 | .00 | .00 |
| 28 | .00 | .00 | .00 | 5.4 | 639 | 51 | .00 | .00 | .00 | .00 | .00 | .00 |
| 29 | .00 | .00 | .00 | 11 | --- | 44 | .00 | .00 | .00 | .00 | .00 | .00 |
| 30 | .00 | .00 | .00 | 11 | --- | 41 | .00 | .00 | .00 | .00 | .00 | .00 |
| 31 | .00 | --- | .00 | 157 | --- | 38 | --- | .00 | --- | .00 | .00 | --- |
| TOTAL | 6.00 | .00 | .00 | 431.32 | 1608.6 | 4181 | 415.00 | .00 | .00 | .00 | .00 | .00 |
| MEAN | .19 | .000 | .000 | 13.9 | 57.5 | 135 | 13.8 | .000 | .000 | .000 | .000 | .000 |
| MAX | 5.0 | .00 | .00 | 157 | 639 | 813 | 100 | .00 | .00 | .00 | .00 | .00 |
| MIN | .00 | .00 | .00 | .00 | 7.9 | 37 | .00 | .00 | .00 | .00 | .00 | .00 |
| AC-FT | 12 | .00 | .00 | 856 | 3190 | 8290 | 823 | .00 | .00 | .00 | .00 | .00 |

CAL YR 1977 TOTAL 91.17 MEAN .25 MAX 31 MIN .00 AC-FT 181
WTR YR 1978 TOTAL 6641.92 MEAN 18.2 MAX 813 MIN .00 AC-FT 13170

NOTE.--No gage-height record Oct. 1-17, and Apr. 1 to July 15.

## 09505350 DRY BEAVER CREEK NEAR RIMROCK, AZ

LOCATION.--Lat 34°43'43", long 111°46'30", in NE¼NW¼ sec.1, T.15 N., R.5 E., Yavapai County, Hydrologic Unit 15060202, in Coconino National Forest, on left upstream abutment of abandoned highway bridge, 400 ft (122 m) upstream from present State Highway 179 and 5.5 mi (8.8 km) north of Rimrock.

DRAINAGE AREA.--142 $mi^2$ (368 $km^2$).

PERIOD OF RECORD.--October 1960 to current year.

REVISED RECORDS.--WRD Ariz. 1969: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 3,694.38 ft (1,126.047 m) National Geodetic Vertical Datum of 1929 (Arizona Highway Department bench mark).

REMARKS.--Records fair. No known diversions above station.

AVERAGE DISCHARGE.--18 years, 37.4 $ft^3/s$ (1.06 $m^3/s$), 27,100 acre-ft/yr (33.4 $hm^3/yr$); median of yearly mean discharges, 28 $ft^3/s$ (0.79 $m^3/s$), 20,300 acre-ft/yr (25 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 26,600 $ft^3/s$ (753 $m^3/s$) Sept. 5, 1970, gage height, 14.35 ft (4.374 m), from rating curve extended above 6,000 $ft^3/s$ (170 $m^3/s$) on basis of computation of peak flow over weir at gage height 9.07 ft (2.765 m) and 9.69 ft (2.954 m) and slope-area measurement at gage height 14.35 ft (4.374 m); no flow for many days each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*) and peak discharges above base of 600 $ft^3/s$ (17.0 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) | Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Jan. 17 | 1030 | 835 | 23.6 | 4.65 | 1.417 | Mar. 5 | 1200 | 3,200 | 90.6 | 6.64 | 2.024 |
| Jan. 31 | 2000 | 2,340 | 66.3 | 6.05 | 1.844 | Mar. 12 | 0030 | 1,230 | 34.8 | 5.08 | 1.548 |
| Feb. 8 | 0600 | 631 | 17.9 | 4.38 | 1.335 | Mar. 22 | 0545 | 3,360 | 95.2 | 6.74 | 2.054 |
| Mar. 1 | 0515 | *8,410 | 238 | 9.25 | 2.819 | Apr. 2 | 2315 | 716 | 20.3 | 4.50 | 1.372 |

No flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .00 | .00 | .00 | .00 | 708 | 4590 | 197 | .00 | .00 | .00 | 2.8 | .00 |
| 2 | .00 | .00 | .00 | .00 | 188 | 3660 | 369 | .00 | .00 | .00 | .12 | .00 |
| 3 | .00 | .00 | .00 | .00 | 121 | 1840 | 343 | .00 | .00 | .00 | .00 | .00 |
| 4 | .00 | .00 | .00 | .00 | 95 | 505 | 126 | .00 | .00 | .00 | .00 | .00 |
| 5 | .00 | .00 | .00 | .00 | 65 | 1570 | 79 | .00 | .00 | .00 | .00 | .00 |
| 6 | 11 | .00 | .00 | .00 | 351 | 672 | 53 | .00 | .00 | .00 | .00 | .00 |
| 7 | .47 | .00 | .00 | .00 | 297 | 307 | 39 | .00 | .00 | .00 | .00 | .00 |
| 8 | .02 | .00 | .00 | .00 | 330 | 213 | 34 | .00 | .00 | .00 | .00 | .00 |
| 9 | .00 | .00 | .00 | .00 | 165 | 203 | 65 | .00 | .00 | .00 | .00 | .00 |
| 10 | .00 | .00 | .00 | .00 | 128 | 207 | 116 | .00 | .00 | .00 | .00 | .00 |
| 11 | .00 | .00 | .00 | .00 | 227 | 399 | 99 | .00 | .00 | .00 | .00 | .00 |
| 12 | .00 | .00 | .00 | .00 | 122 | 586 | 52 | .00 | .00 | .00 | 1.2 | .00 |
| 13 | .00 | .00 | .00 | .00 | 106 | 334 | 32 | .00 | .00 | .00 | .27 | .00 |
| 14 | .00 | .00 | .00 | .00 | 114 | 336 | 20 | .00 | .00 | .00 | .00 | .00 |
| 15 | .00 | .00 | .00 | 40 | 80 | 212 | 12 | .00 | .00 | .00 | .00 | .00 |
| 16 | .00 | .00 | .00 | 80 | 71 | 158 | 6.9 | .00 | .00 | .00 | .00 | .00 |
| 17 | .00 | .00 | .00 | 369 | 50 | 149 | 5.0 | .00 | .00 | .00 | .00 | .00 |
| 18 | .00 | .00 | .00 | 131 | 36 | 180 | 3.0 | .00 | .00 | .00 | .00 | .00 |
| 19 | .00 | .00 | .00 | 71 | 28 | 186 | 2.0 | .00 | .00 | .00 | .00 | .00 |
| 20 | .00 | .00 | .00 | 56 | 33 | 291 | 1.0 | .00 | .00 | .00 | .00 | .00 |
| 21 | .00 | .00 | .00 | 36 | 132 | 318 | .00 | .00 | .00 | .00 | .00 | .00 |
| 22 | .00 | .00 | .00 | 30 | 221 | 1290 | .00 | .00 | .00 | .00 | .00 | .00 |
| 23 | .00 | .00 | .00 | 24 | 273 | 963 | .00 | .00 | .00 | .00 | .00 | .00 |
| 24 | .00 | .00 | .00 | 12 | 269 | 388 | .00 | .00 | .00 | .00 | .00 | .00 |
| 25 | .00 | .00 | .00 | 4.6 | 237 | 291 | .00 | .00 | .00 | .00 | .00 | .00 |
| 26 | .00 | .00 | .00 | 2.8 | 214 | 233 | .00 | .00 | .00 | .00 | .00 | .00 |
| 27 | .00 | .00 | .00 | 1.8 | 393 | 219 | .00 | .00 | .00 | .00 | .00 | .00 |
| 28 | .00 | .00 | .00 | 1.9 | 2830 | 233 | .00 | .00 | .00 | .00 | .00 | .00 |
| 29 | .00 | .00 | .00 | 15 | --- | 185 | .00 | .00 | .00 | .00 | .00 | .00 |
| 30 | .00 | .00 | .00 | 54 | --- | 160 | .00 | .00 | .00 | .00 | .00 | .00 |
| 31 | .00 | --- | .00 | 702 | --- | 154 | --- | .00 | --- | .00 | .00 | --- |
| TOTAL | 11.49 | .00 | .00 | 1631.10 | 7884 | 21032 | 1653.90 | .00 | .00 | .00 | 4.39 | .00 |
| MEAN | .37 | .000 | .000 | 52.6 | 282 | 678 | 55.1 | .000 | .000 | .000 | .14 | .000 |
| MAX | 11 | .00 | .00 | 702 | 2830 | 4590 | 369 | .00 | .00 | .00 | 2.8 | .00 |
| MIN | .00 | .00 | .00 | .00 | 28 | 149 | .00 | .00 | .00 | .00 | .00 | .00 |
| AC-FT | 23 | .00 | .00 | 3240 | 15640 | 41720 | 3280 | .00 | .00 | .00 | 8.7 | .00 |

CAL YR 1977 TOTAL 406.43 MEAN 1.11 MAX 155 MIN .00 AC-FT 806
WTR YR 1978 TOTAL 32216.88 MEAN 88.3 MAX 4590 MIN .00 AC-FT 63900

NOTE.--No gage-height record Apr. 17 to June 13.

## 09505550 VERDE RIVER BELOW CAMP VERDE, AZ

LOCATION.--Lat 34°33'02", long 111°51'02", in SW¼NW¼ sec.5, T.13 N., R.5 E., Yavapai County, Hydrologic Unit 15060203, on downstream side of bridge on county highway, 0.5 mi (0.8 km) southeast of Camp Verde, and 2.2 mi (3.5 km) downstream from Beaver Creek.

DRAINAGE AREA.--4,670 $mi^2$ (12,100 $km^2$), approximately (includes 373 $mi^2$ or 966 $km^2$ in Aubrey Valley Playa, a closed basin).

PERIOD OF RECORD.--November 1971 to current year.

GAGE.--Water-stage recorder. Datum of gage is 3,045.10 ft (928.146 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair. About 10,000 acres (40 $km^2$) above station are irrigated by surface water and ground water.

AVERAGE DISCHARGE.--6 years, 378 $ft^3/s$ (10.70 $m^3/s$), 273,900 acre-ft/yr (338 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 41,000 $ft^3/s$ (1,160 $m^3/s$) Mar. 1, 1978, gage height, 19.41 ft (5.916 m); minimum daily, 13 $ft^3/s$ (0.368 $m^3/s$) July 6, 7, 1976, July 9, 10, 1978.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Sept. 5-6, 1970, reached a stage of about 19.0 ft (5.79 m), estimated on basis of stage of 19.5 ft (5.94 m), from profile past gage, discharge, 43,000 $ft^3/s$ (1,220 $m^3/s$). A peak discharge of 97,000 $ft^3/s$ (2,750 $m^3/s$) was recorded at former gaging station at site 8.5 mi (13.7 km) downstream (below West Clear Creek) on Mar. 3, 1938, and is the highest near this site since at least 1924.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*) and peak discharges above base of 3,000 $ft^3/s$ (85 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) | Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Feb. 1 | 0615 | 3,540 | 100 | 8.17 | 2.490 | Mar. 13 | 0745 | 4,480 | 126 | 8.85 | 2.697 |
| Mar. 1 | 1715 | *41,000 | 1,160 | 19.41 | 5.916 | Mar. 23 | 0445 | 8,580 | 243 | 10.89 | 3.319 |
| Mar. 5 | 2245 | 14,270 | 404 | 12.90 | 3.932 | | | | | | |

Minimum daily, 13.0 $ft^3/s$ (0.368 $m^3/s$) July 9, 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 107 | 71 | 99 | 115 | 2690 | 29000 | 630 | 60 | 20 | 15 | 29 | 25 |
| 2 | 100 | 72 | 101 | 113 | 1260 | 25800 | 897 | 60 | 20 | 15 | 204 | 25 |
| 3 | 96 | 71 | 99 | 110 | 755 | 23500 | 1570 | 60 | 20 | 16 | 123 | 24 |
| 4 | 61 | 67 | 99 | 110 | 593 | 8670 | 1110 | 50 | 20 | 15 | 110 | 27 |
| 5 | 61 | 66 | 102 | 100 | 450 | 8730 | 698 | 50 | 20 | 19 | 103 | 34 |
| 6 | 1170 | 78 | 96 | 100 | 567 | 10100 | 486 | 50 | 20 | 18 | 77 | 44 |
| 7 | 445 | 101 | 104 | 100 | 1500 | 5450 | 361 | 40 | 20 | 15 | 72 | 38 |
| 8 | 206 | 108 | 106 | 100 | 1440 | 2750 | 330 | 40 | 20 | 14 | 56 | 34 |
| 9 | 163 | 101 | 106 | 100 | 1340 | 1980 | 326 | 40 | 20 | 13 | 44 | 39 |
| 10 | 144 | 99 | 106 | 110 | 848 | 1630 | 442 | 40 | 20 | 13 | 36 | 31 |
| 11 | 132 | 99 | 108 | 120 | 1410 | 1530 | 503 | 40 | 20 | 14 | 47 | 31 |
| 12 | 123 | 96 | 115 | 134 | 1080 | 2590 | 510 | 30 | 18 | 14 | 186 | 30 |
| 13 | 110 | 95 | 106 | 122 | 801 | 3410 | 389 | 30 | 21 | 15 | 163 | 34 |
| 14 | 74 | 96 | 107 | 109 | 763 | 2940 | 293 | 30 | 21 | 16 | 157 | 34 |
| 15 | 70 | 90 | 100 | 120 | 733 | 2260 | 236 | 30 | 22 | 15 | 146 | 36 |
| 16 | 69 | 90 | 103 | 500 | 579 | 1490 | 208 | 29 | 22 | 16 | 123 | 44 |
| 17 | 76 | 88 | 106 | 1000 | 450 | 1190 | 195 | 31 | 20 | 21 | 86 | 44 |
| 18 | 66 | 87 | 106 | 700 | 343 | 1100 | 176 | 33 | 19 | 20 | 60 | 44 |
| 19 | 61 | 88 | 106 | 500 | 285 | 1100 | 150 | 31 | 20 | 22 | 50 | 45 |
| 20 | 58 | 90 | 105 | 400 | 250 | 1340 | 140 | 30 | 19 | 21 | 42 | 45 |
| 21 | 56 | 92 | 108 | 300 | 262 | 1520 | 130 | 20 | 18 | 25 | 37 | 46 |
| 22 | 60 | 90 | 106 | 200 | 542 | 4220 | 120 | 20 | 18 | 28 | 33 | 43 |
| 23 | 59 | 92 | 106 | 150 | 906 | 5800 | 110 | 20 | 17 | 27 | 35 | 41 |
| 24 | 56 | 92 | 107 | 140 | 1220 | 2490 | 100 | 20 | 17 | 26 | 32 | 39 |
| 25 | 53 | 93 | 110 | 120 | 1100 | 1580 | 90 | 20 | 17 | 24 | 31 | 39 |
| 26 | 59 | 93 | 115 | 110 | 1020 | 1200 | 90 | 20 | 17 | 26 | 38 | 38 |
| 27 | 60 | 93 | 122 | 160 | 881 | 1000 | 80 | 30 | 18 | 24 | 33 | 37 |
| 28 | 55 | 96 | 127 | 153 | 7240 | 931 | 80 | 30 | 20 | 26 | 28 | 37 |
| 29 | 66 | 93 | 122 | 153 | --- | 808 | 70 | 20 | 20 | 23 | 27 | 35 |
| 30 | 78 | 95 | 115 | 158 | --- | 698 | 70 | 20 | 18 | 21 | 25 | 34 |
| 31 | 76 | --- | 113 | 299 | --- | 637 | --- | 20 | --- | 22 | 25 | --- |
| TOTAL | 4070 | 2682 | 3333 | 6706 | 31308 | 157444 | 10590 | 1044 | 582 | 599 | 2258 | 1117 |
| MEAN | 131 | 89.4 | 108 | 216 | 1118 | 5079 | 353 | 33.7 | 19.4 | 19.3 | 72.8 | 37.2 |
| MAX | 1170 | 108 | 127 | 1000 | 7240 | 29000 | 1570 | 60 | 22 | 28 | 204 | 54 |
| MIN | 53 | 66 | 96 | 100 | 250 | 637 | 70 | 20 | 17 | 13 | 25 | 24 |
| AC-FT | 8070 | 5320 | 6610 | 13300 | 62100 | 312300 | 21010 | 2070 | 1150 | 1190 | 4480 | 2220 |

CAL YR 1977 TOTAL 34109 MEAN 93.4 MAX 1170 MIN 14 AC-FT 67660
WTR YR 1978 TOTAL 221733 MEAN 607 MAX 29000 MIN 13 AC-FT 439800

## 09505800 WEST CLEAR CREEK NEAR CAMP VERDE, AZ

LOCATION.--Lat 34°32'19", long 111°41'36", in NW¼NW¼ sec.11, T.13 N., R.6 E., Yavapai County, Hydrologic Unit 15060203, in Coconino National Forest, on left bank at Bull Pen Ranch, 9 mi (14 km) upstream from mouth, and 9 mi (14 km) east of Camp Verde.

DRAINAGE AREA.--241 $mi^2$ (624 $km^2$).

PERIOD OF RECORD.--December 1964 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 3,630 ft (1,106 m), from topographic map.

REMARKS.--Records fair.

AVERAGE DISCHARGE.--13 years, 59.0 $ft^3/s$ (1.671 $m^3/s$), 42,750 acre-ft/yr (52.7 $hm^3/yr$); median of yearly mean discharges, 46 $ft^3/s$ (1.30 $m^3/s$), 33,300 acre-ft/yr (41 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,800 $ft^3/s$ (391 $m^3/s$) Mar. 1, 1978, gage height, 10.15 ft (3.094 m), from rating curve extended above 2,700 $ft^3/s$ (76 $m^3/s$), on basis of slope-area measurement of peak flow; minimum daily, 12 $ft^3/s$ (0.34 $m^3/s$) at times during some months in 1966, 1968-70, 1974, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*), (from rating curve extended above 2,700 $ft^3/s$ or (76 $m^3/s$) on basis of slope-area measurement of peak flow) and peak discharges above base of 1,000 $ft^3/s$ (28 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|
| Mar. 1 | 1315 | *13,800 | 391 | 10.15 | 3.094 |
| Mar. 5 | 1300 | 3,880 | 110 | 7.28 | 2.219 |
| Mar. 22 | 2130 | 1,420 | 40.2 | 5.75 | 1.753 |

Minimum daily, 16 $ft^3/s$ (0.45 $m^3/s$) Oct. 10, 16-19, Nov. 10-18, Dec. 10, 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 19 | 17 | 17 | 20 | 200 | 8160 | 91 | 29 | 19 | 18 | 20 | 19 |
| 2 | 17 | 17 | 17 | 20 | 122 | 4440 | 91 | 28 | 19 | 18 | 23 | 19 |
| 3 | 17 | 17 | 17 | 19 | 72 | 4250 | 85 | 30 | 19 | 17 | 20 | 19 |
| 4 | 17 | 17 | 17 | 19 | 54 | 846 | 78 | 28 | 18 | 17 | 19 | 19 |
| 5 | 17 | 17 | 17 | 19 | 37 | 1730 | 68 | 28 | 18 | 17 | 19 | 19 |
| 6 | 21 | 17 | 17 | 19 | 31 | 1040 | 58 | 27 | 18 | 18 | 19 | 20 |
| 7 | 17 | 17 | 17 | 19 | 133 | 673 | 51 | 26 | 18 | 17 | 19 | 20 |
| 8 | 17 | 17 | 17 | 20 | 162 | 367 | 50 | 26 | 18 | 18 | 19 | 20 |
| 9 | 17 | 17 | 17 | 20 | 128 | 245 | 47 | 26 | 18 | 19 | 20 | 19 |
| 10 | 16 | 16 | 16 | 20 | 91 | 181 | 42 | 26 | 17 | 19 | 19 | 19 |
| 11 | 17 | 16 | 16 | 20 | 140 | 166 | 41 | 26 | 17 | 19 | 19 | 19 |
| 12 | 17 | 16 | 17 | 20 | 105 | 332 | 40 | 26 | 18 | 18 | 21 | 19 |
| 13 | 17 | 16 | 17 | 20 | 78 | 456 | 43 | 26 | 17 | 18 | 19 | 20 |
| 14 | 17 | 16 | 17 | 20 | 76 | 402 | 41 | 26 | 17 | 18 | 18 | 20 |
| 15 | 17 | 16 | 17 | 20 | 72 | 376 | 38 | 25 | 17 | 18 | 18 | 21 |
| 16 | 16 | 16 | 17 | 30 | 65 | 234 | 37 | 25 | 17 | 19 | 17 | 21 |
| 17 | 16 | 16 | 17 | 50 | 54 | 160 | 35 | 24 | 17 | 19 | 17 | 21 |
| 18 | 16 | 16 | 18 | 40 | 41 | 153 | 33 | 23 | 17 | 19 | 17 | 21 |
| 19 | 16 | 17 | 18 | 30 | 32 | 153 | 32 | 23 | 17 | 19 | 17 | 20 |
| 20 | 17 | 17 | 18 | 20 | 29 | 160 | 31 | 23 | 18 | 18 | 17 | 20 |
| 21 | 20 | 17 | 17 | 20 | 46 | 181 | 30 | 23 | 18 | 19 | 18 | 19 |
| 22 | 19 | 17 | 17 | 20 | 200 | 664 | 29 | 22 | 18 | 18 | 18 | 20 |
| 23 | 17 | 17 | 19 | 20 | 271 | 744 | 29 | 22 | 18 | 19 | 18 | 20 |
| 24 | 17 | 17 | 19 | 20 | 256 | 367 | 29 | 21 | 18 | 20 | 18 | 20 |
| 25 | 17 | 17 | 19 | 20 | 298 | 238 | 28 | 21 | 18 | 20 | 17 | 20 |
| 26 | 17 | 17 | 19 | 20 | 349 | 178 | 29 | 21 | 18 | 20 | 17 | 20 |
| 27 | 17 | 17 | 19 | 20 | 279 | 146 | 28 | 21 | 18 | 19 | 17 | 20 |
| 28 | 17 | 17 | 19 | 20 | 2980 | 131 | 28 | 21 | 18 | 23 | 17 | 20 |
| 29 | 17 | 17 | 20 | 20 | --- | 120 | 28 | 20 | 18 | 20 | 17 | 20 |
| 30 | 17 | 17 | 20 | 20 | --- | 105 | 27 | 19 | 18 | 18 | 18 | 20 |
| 31 | 17 | --- | 20 | 20 | --- | 93 | --- | 19 | --- | 18 | 18 | --- |
| TOTAL | 533 | 501 | 549 | 685 | 6399 | 27451 | 1317 | 751 | 534 | 577 | 570 | 594 |
| MEAN | 17.2 | 16.7 | 17.7 | 22.1 | 229 | 886 | 43.9 | 24.2 | 17.8 | 18.6 | 18.4 | 19.8 |
| MAX | 21 | 17 | 20 | 50 | 2980 | 8160 | 91 | 30 | 19 | 23 | 23 | 21 |
| MIN | 16 | 16 | 16 | 19 | 29 | 93 | 27 | 19 | 17 | 17 | 17 | 19 |
| AC-FT | 1060 | 994 | 1090 | 1360 | 12690 | 54450 | 2610 | 1490 | 1060 | 1140 | 1130 | 1180 |

CAL YR 1977 TOTAL 6022 MEAN 16.5 MAX 50 MIN 12 AC-FT 11940
WTR YR 1978 TOTAL 40461 MEAN 111 MAX 8160 MIN 16 AC-FT 80250

## 09507500 FOSSIL CREEK DIVERSIONS TO CHILDS POWERPLANT, NEAR CAMP VERDE, AZ

LOCATION.--Lat 34°22'06", long 111°39'56", in NE¼SW¼ sec.20, T.11½ N., R.7 E., Yavapai County, Hydrologic Unit 15060203, at head of Stehr Lake, 2.3 mi (3.7 km) northeast of Childs powerplant, 4.4 mi (7.1 km) by flume downstream from Irving powerplant, and 17 mi (27 km) southeast of Camp Verde.

PERIOD OF RECORD.--January 1952 to current year.

GAGE.--Water-stage recorder and weir in concrete flume. Datum of gage is 3,716.2 ft (1,132.70 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Record is obtained at the head of Stehr Lake, a regulatory basin, and shows the water used by Childs powerplant. Most of the flow originates at Fossil Springs, which are fairly constant. Diversion is made from Fossil Creek 8 mi (13 km) upstream from this station and is first used by Irving powerplant. A second diversion from Fossil Creek enters the flume below Irving powerplant. Based on estimates and records for previous years, the flow through the Irving powerplant is estimated to be about 99 percent of the record published herewith.

AVERAGE DISCHARGE.--26 years, 43.0 $ft^3/s$ (1.22 $m^3/s$), 31,150 acre-ft/yr (38.4 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 51 $ft^3/s$ (1.44 $m^3/s$) Apr. 17-21, 1952, Jan. 17, 18, 1965; no flow at times in most years.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 45 | 46 | 27 | 44 | 46 | 41 | 44 | 48 | 38 | 43 | 48 | 47 |
| 2 | 45 | 46 | 45 | 44 | 46 | 44 | 45 | 48 | 46 | 44 | 47 | 47 |
| 3 | 45 | 45 | 45 | 44 | 36 | 37 | 45 | 47 | 45 | 44 | 47 | 47 |
| 4 | 45 | 42 | 45 | 19 | 47 | 47 | 45 | 47 | 46 | 44 | 47 | 46 |
| 5 | 45 | 47 | 45 | 9.0 | 46 | 47 | 44 | 47 | 46 | 44 | 47 | 47 |
| 6 | 45 | 47 | 45 | 45 | 48 | 47 | 44 | 47 | 46 | 43 | 49 | 47 |
| 7 | 45 | 47 | 45 | 44 | 46 | 48 | 46 | 48 | 46 | 43 | 49 | 47 |
| 8 | 44 | 48 | 45 | 44 | 45 | 45 | 46 | 48 | 45 | 43 | 49 | 47 |
| 9 | 44 | 47 | 45 | 44 | 45 | 45 | 45 | 48 | 46 | 43 | 48 | 47 |
| 10 | 44 | 47 | 45 | 45 | 45 | 45 | 45 | 48 | 46 | 43 | 47 | 47 |
| 11 | 44 | 43 | 45 | 45 | 43 | 46 | 47 | 48 | 45 | 43 | 48 | 47 |
| 12 | 44 | 47 | 45 | 44 | 47 | 45 | 46 | 48 | 45 | 43 | 48 | 47 |
| 13 | 45 | 47 | 45 | 44 | 46 | 45 | 46 | 48 | 45 | 43 | 48 | 47 |
| 14 | 45 | 47 | 45 | 40 | 47 | 41 | 46 | 48 | 45 | 43 | 47 | 47 |
| 15 | 45 | 47 | 26 | 35 | 46 | 44 | 46 | 48 | 44 | 45 | 47 | 47 |
| 16 | 46 | 47 | 44 | 24 | 47 | 44 | 46 | 48 | 45 | 44 | 48 | 47 |
| 17 | 43 | 28 | 44 | 45 | 46 | 45 | 46 | 47 | 45 | 43 | 48 | 47 |
| 18 | 43 | 47 | 45 | 45 | 46 | 45 | 45 | 47 | 45 | 43 | 48 | 47 |
| 19 | 39 | 47 | 44 | 48 | 47 | 45 | 46 | 47 | 45 | 43 | 48 | 47 |
| 20 | 46 | 46 | 24 | 50 | 45 | 43 | 47 | 47 | 44 | 43 | 48 | 46 |
| 21 | 43 | 46 | 44 | 50 | 45 | 45 | 47 | 47 | 43 | 33 | 48 | 46 |
| 22 | 45 | 46 | 44 | 47 | 45 | 46 | 47 | 46 | 43 | 46 | 48 | 46 |
| 23 | 45 | 46 | 44 | 47 | 38 | 44 | 47 | 47 | 43 | 47 | 48 | 46 |
| 24 | 45 | 46 | 44 | 47 | 45 | 43 | 47 | 46 | 43 | 47 | 47 | 46 |
| 25 | 46 | 46 | 45 | 47 | 46 | 23 | 47 | 46 | 44 | 47 | 43 | 46 |
| 26 | 27 | 46 | 44 | 44 | 46 | 42 | 47 | 46 | 44 | 47 | 48 | 46 |
| 27 | 46 | 46 | 45 | 47 | 45 | 41 | 47 | 46 | 44 | 47 | 48 | 46 |
| 28 | 46 | 46 | 44 | 48 | 48 | 43 | 47 | 46 | 43 | 47 | 48 | 47 |
| 29 | 46 | 46 | 44 | 47 | --- | 45 | 47 | 46 | 45 | 47 | 48 | 47 |
| 30 | 46 | 46 | 44 | 48 | --- | 44 | 48 | 46 | 43 | 47 | 47 | 47 |
| 31 | 46 | --- | 44 | 49 | --- | 44 | --- | 46 | --- | 47 | 47 | --- |
| TOTAL | 1368 | 1368 | 1325 | 1327.0 | 1268 | 1349 | 1381 | 1460 | 1333 | 1369 | 1476 | 1401 |
| MEAN | 44.1 | 45.6 | 42.7 | 42.8 | 45.3 | 43.5 | 46.0 | 47.1 | 44.4 | 44.2 | 47.6 | 46.7 |
| MAX | 46 | 48 | 45 | 50 | 48 | 48 | 48 | 48 | 46 | 47 | 49 | 47 |
| MIN | 27 | 28 | 24 | 9.0 | 36 | 23 | 44 | 46 | 38 | 33 | 43 | 46 |
| AC-FT | 2710 | 2710 | 2630 | 2630 | 2520 | 2680 | 2740 | 2900 | 2640 | 2720 | 2930 | 2780 |

CAL YR 1977 TOTAL 15269.0 MEAN 41.8 MAX 49 MIN 19 AC-FT 30290
WTR YR 1978 TOTAL 16425.0 MEAN 45.0 MAX 50 MIN 9.0 AC-FT 32580

## 09507580 EAST VERDE RIVER DIVERSION FROM EAST CLEAR CREEK, NEAR PINE, AZ

LOCATION.--Lat 34°25'10", long 111°15'50", in NW¼NE¼ sec.23, T.12 N., R.10 E. (unsurveyed), Gila County, Hydrologic Unit 15060203, at confluence of Mail Creek and East Verde River, 0.9 mi (1.4 km) southeast of Washington Park, and 11 mi (18 km) east of Pine.

PERIOD OF RECORD.--October 1965 to current year.

GAGE.--Water-stage recorder and weir in concrete flume. Altitude of gage is 5,774 ft (1,760.0 m), from Phelps Dodge Corporation reference mark.

REMARKS.--Records good. Diversion is 9.5 mi (15.3 km) northeast, from Blue Ridge Reservoir on East Clear Creek, in the Little Colorado River basin, to the East Verde River in the Gila River basin.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 34 $ft^3/s$ (0.96 $m^3/s$) Apr. 19, 29, May 5-7, 10, 12, 15, 18, June 2, 1969; no flow for long periods each year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 26 | 22 | 18 | 21 | 22 |
| 2 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 27 | 22 | 18 | 21 | 21 |
| 3 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 26 | 22 | 18 | 22 | 21 |
| 4 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 27 | 22 | 18 | 20 | 21 |
| 5 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 26 | 22 | 18 | 20 | 21 |
| 6 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 27 | 22 | 18 | 18 | 21 |
| 7 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 26 | 23 | 18 | 17 | 21 |
| 8 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 27 | 23 | 18 | 17 | 21 |
| 9 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 26 | 21 | 18 | 18 | 21 |
| 10 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 27 | 18 | 18 | 18 | 21 |
| 11 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 23 | 18 | 17 | 17 | 21 |
| 12 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 25 | 18 | 18 | 14 | 21 |
| 13 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 26 | 18 | 18 | 13 | 21 |
| 14 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 27 | 18 | 18 | 13 | 21 |
| 15 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 24 | 18 | 18 | 15 | 21 |
| 16 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 19 | 18 | 18 | 18 | 21 |
| 17 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 22 | 18 | 18 | 17 | 21 |
| 18 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 22 | 18 | 18 | 17 | 21 |
| 19 | .00 | .00 | .00 | .00 | 9.5 | .00 | .00 | 22 | 18 | 18 | 18 | 21 |
| 20 | .00 | .00 | .00 | .00 | 21 | .00 | .00 | 22 | 17 | 18 | 17 | 20 |
| 21 | .00 | .00 | .00 | .00 | 21 | .00 | .00 | 22 | 18 | 17 | 18 | 21 |
| 22 | .00 | .00 | .00 | .00 | 21 | .00 | 12 | 22 | 18 | 17 | 18 | 21 |
| 23 | .00 | .00 | .00 | .00 | 21 | .00 | 22 | 22 | 18 | 18 | 17 | 20 |
| 24 | .00 | .00 | .00 | .00 | 21 | .00 | 22 | 22 | 18 | 18 | 19 | 21 |
| 25 | .00 | .00 | .00 | .00 | 21 | .00 | 22 | 22 | 18 | 18 | 21 | 21 |
| 26 | .00 | .00 | .00 | .00 | 21 | .00 | 22 | 22 | 18 | 18 | 21 | 21 |
| 27 | .00 | .00 | .00 | .00 | 21 | .00 | 22 | 24 | 19 | 18 | 21 | 21 |
| 28 | .00 | .00 | .00 | .00 | 12 | .00 | 27 | 26 | 19 | 17 | 21 | 21 |
| 29 | .00 | .00 | .00 | .00 | --- | .00 | 26 | 26 | 18 | 18 | 21 | 21 |
| 30 | .00 | .00 | .00 | .00 | --- | .00 | 27 | 24 | 18 | 22 | 21 | 21 |
| 31 | .00 | --- | .00 | .00 | --- | .00 | --- | 22 | --- | 22 | 21 | --- |
| TOTAL | .00 | .00 | .00 | .00 | 189.50 | .00 | 202.00 | 751 | 578 | 562 | 570 | 629 |
| MEAN | .000 | .000 | .000 | .000 | 6.77 | .000 | 6.73 | 24.2 | 19.3 | 18.1 | 18.4 | 21.0 |
| MAX | .00 | .00 | .00 | .00 | 21 | .00 | 27 | 27 | 23 | 22 | 22 | 22 |
| MIN | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 19 | 17 | 17 | 13 | 20 |
| AC-FT | .00 | .00 | .00 | .00 | 376 | .00 | 401 | 1490 | 1150 | 1110 | 1130 | 1250 |

CAL YR 1977 TOTAL 1337.10 MEAN 3.66 MAX 26 MIN .00 AC-FT 2650
WTR YR 1978 TOTAL 3481.50 MEAN 9.54 MAX 27 MIN .00 AC-FT 6910

## 09507980 EAST VERDE RIVER NEAR CHILDS, AZ

LOCATION.--Lat 34°17'00", long 111°38'50", in sec.21, T.11 N., R.7 E. (unsurveyed), Gila County, Hydrologic Unit 15060203, in Tonto National Forest, on left bank 1.3 mi (2.1 km) upstream from mouth and 6 mi (10 km) southeast of Childs.

DRAINAGE AREA.--328 $mi^2$ (850 $km^2$).

PERIOD OF RECORD.--September 1961 to December 1965, May 1967 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 2,500 ft (760 m), from topographic map. Sept. 1, 1961, to Dec. 15, 1965, at site 1 mi (2 km) upstream at altitude 2,600 ft (790 m), datum raised 0.38 ft (0.116 m) Oct. 4, 1963. May 25, 1967, to July 20, 1972, at present site at datum 1.29 ft (0.393 m) higher.

REMARKS.--Records good. Records include transbasin diversions from East Clear Creek to headwaters of East Verde River. (See sta 09507580.)

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 23,500 $ft^3/s$ (666 $m^3/s$) Sept. 5, 1970, gage height, 19.2 ft (5.85 m), from profile past gage, from rating curve extended above 960 $ft^3/s$ (27 $m^3/s$) on basis of slope-area measurements at gage heights 8.82 and 19.2 ft (2.688 and 5.85 m); minimum daily, 0.20 $ft^3/s$ (0.006 $m^3/s$) June 19 to July 8, 1963, July 21-28, 1971.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*), (from rating curve extended above 1,300 $ft^3/s$ or 36.8 $m^3/s$ as explained above) and peak discharges above base of 300 $ft^3/s$ (8.5 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|
| Jan. 15 | 1800 | 2,080 | 58.9 | 6.26 | 1.908 |
| Jan. 17 | 1400 | 1,770 | 50.1 | 5.90 | 1.798 |
| Jan. 31 | 2200 | 940 | 26.6 | 4.80 | 1.463 |
| Feb. 11 | 0500 | 1,850 | 52.4 | 6.00 | 1.829 |
| Feb. 15 | 0300 | 541 | 15.3 | 4.21 | 1.283 |
| Mar. 1 | 1000 | *15,000 | 424 | 16.0 | 4.877 |
| Mar. 5 | 1800 | 2,850 | 80.7 | 7.00 | 2.134 |
| Mar. 12 | 2200 | 1,010 | 28.6 | 4.90 | 1.494 |
| Mar. 22 | 1500 | 772 | 21.7 | 4.60 | 1.402 |

Minimum daily, 1.7 $ft^3/s$ (0.018 $m^3/s$) Oct. 16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5.4 | 2.9 | 3.8 | 8.9 | 455 | 7260 | 127 | 57 | 36 | 24 | 32 | 22 |
| 2 | 4.9 | 2.9 | 3.8 | 7.7 | 129 | 6890 | 127 | 65 | 34 | 23 | 34 | 22 |
| 3 | 3.8 | 2.9 | 3.8 | 6.4 | 67 | 4410 | 120 | 65 | 33 | 22 | 34 | 23 |
| 4 | 3.5 | 2.7 | 3.8 | 5.7 | 46 | 1230 | 100 | 60 | 33 | 21 | 30 | 24 |
| 5 | 3.0 | 2.7 | 3.2 | 5.4 | 32 | 1560 | 87 | 54 | 33 | 21 | 24 | 29 |
| 6 | 4.0 | 3.0 | 3.0 | 5.4 | 27 | 1350 | 82 | 53 | 33 | 20 | 23 | 33 |
| 7 | 4.9 | 3.2 | 3.0 | 5.2 | 32 | 695 | 75 | 53 | 33 | 20 | 22 | 30 |
| 8 | 4.6 | 3.8 | 3.5 | 4.9 | 48 | 435 | 75 | 51 | 33 | 20 | 35 | 24 |
| 9 | 4.6 | 4.0 | 3.5 | 4.9 | 53 | 376 | 78 | 50 | 34 | 21 | 44 | 26 |
| 10 | 4.3 | 4.0 | 3.5 | 8.1 | 94 | 293 | 72 | 50 | 32 | 21 | 34 | 26 |
| 11 | 3.8 | 3.9 | 3.5 | 15 | 1270 | 265 | 65 | 50 | 30 | 22 | 24 | 24 |
| 12 | 2.5 | 3.8 | 3.8 | 17 | 503 | 697 | 65 | 48 | 29 | 23 | 49 | 24 |
| 13 | 2.0 | 3.8 | 3.8 | 14 | 224 | 605 | 62 | 44 | 29 | 21 | 33 | 24 |
| 14 | 2.2 | 3.5 | 3.8 | 11 | 320 | 380 | 59 | 44 | 28 | 21 | 23 | 27 |
| 15 | 2.0 | 3.0 | 3.5 | 855 | 320 | 272 | 56 | 43 | 27 | 22 | 19 | 27 |
| 16 | 1.7 | 3.5 | 3.5 | 556 | 170 | 215 | 53 | 43 | 27 | 22 | 16 | 26 |
| 17 | 1.8 | 3.2 | 3.5 | 960 | 134 | 188 | 50 | 41 | 27 | 24 | 16 | 25 |
| 18 | 1.8 | 3.0 | 3.8 | 370 | 82 | 170 | 48 | 40 | 27 | 22 | 17 | 24 |
| 19 | 1.8 | 3.5 | 4.0 | 89 | 64 | 165 | 46 | 40 | 27 | 20 | 18 | 24 |
| 20 | 1.8 | 4.0 | 4.0 | 91 | 62 | 182 | 43 | 40 | 26 | 20 | 18 | 22 |
| 21 | 2.0 | 4.0 | 4.0 | 77 | 111 | 182 | 38 | 40 | 24 | 20 | 19 | 21 |
| 22 | 2.0 | 4.0 | 4.0 | 43 | 150 | 441 | 37 | 38 | 24 | 20 | 22 | 22 |
| 23 | 2.2 | 4.0 | 4.3 | 30 | 162 | 412 | 36 | 38 | 23 | 20 | 20 | 23 |
| 24 | 2.2 | 3.5 | 4.6 | 24 | 145 | 248 | 47 | 37 | 23 | 23 | 18 | 24 |
| 25 | 2.4 | 3.5 | 4.9 | 17 | 122 | 200 | 50 | 38 | 22 | 24 | 18 | 26 |
| 26 | 2.4 | 3.5 | 5.2 | 16 | 113 | 179 | 53 | 38 | 22 | 29 | 18 | 25 |
| 27 | 2.2 | 3.5 | 5.2 | 13 | 100 | 158 | 53 | 38 | 22 | 56 | 20 | 24 |
| 28 | 2.0 | 3.8 | 5.4 | 11 | 2240 | 152 | 51 | 38 | 24 | 34 | 20 | 23 |
| 29 | 2.5 | 4.0 | 6.8 | 11 | --- | 143 | 51 | 40 | 30 | 24 | 22 | 23 |
| 30 | 2.9 | 3.8 | 9.4 | 10 | --- | 129 | 54 | 40 | 28 | 22 | 22 | 23 |
| 31 | 2.9 | --- | 9.8 | 344 | --- | 124 | --- | 38 | --- | 23 | 22 | --- |
| TOTAL | 90.1 | 104.9 | 135.7 | 3636.6 | 7275 | 30006 | 1960 | 1414 | 853 | 725 | 766 | 740 |
| MEAN | 2.91 | 3.50 | 4.38 | 117 | 260 | 968 | 65.3 | 45.6 | 28.4 | 23.4 | 24.7 | 24.7 |
| MAX | 5.4 | 4.0 | 9.8 | 960 | 2240 | 7260 | 127 | 65 | 36 | 56 | 49 | 33 |
| MIN | 1.7 | 2.7 | 3.0 | 4.9 | 27 | 124 | 36 | 37 | 22 | 20 | 16 | 21 |
| AC-FT | 179 | 208 | 269 | 7210 | 14430 | 59520 | 3890 | 2800 | 1690 | 1440 | 1520 | 1470 |

CAL YR 1977 TOTAL 3265.9 MEAN 8.95 MAX 151 MIN 1.0 AC-FT 6480
WTR YR 1978 TOTAL 47706.3 MEAN 131 MAX 7260 MIN 1.7 AC-FT 94630

## 09508300 WET BOTTOM CREEK NEAR CHILDS, AZ
(Hydrologic bench mark station)

LOCATION.--Lat 34°09'39", long 111°41'32", in sec.36, T.9½ N., R.6 E. (unsurveyed), Gila County, Hydrologic Unit 15060203, in Tonto National Forest, on right bank 1.4 mi (2.3 km) upstream from mouth and 13 mi (21 km) south of Childs.

DRAINAGE AREA.--36.4 $mi^2$ (94.3 $km^2$).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1967 to current year.

REVISED RECORDS.--WRD Ariz. 1970: 1968(M).

GAGE.--Water-stage recorder. Altitude of gage is 2,320 ft (707 m), from topographic map.

REMARKS.--Records fair except those for Mar. 1-4, which are poor.

AVERAGE DISCHARGE.--11 years, 12.1 $ft^3/s$ (0.343 $m^3/s$), 8,770 acre-ft/yr (10.8 $hm^3/yr$); median of yearly mean discharges, 6.7 $ft^3/s$ (0.19 $m^3/s$), 4,900 acre-ft/yr (6.0 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,660 $ft^3/s$ (189 $m^3/s$) Mar. 2, 1978, gage height, 15.66 ft (4.773 m), in gage well, result of slope-area measurement; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*), (result of slope-area measurement) and peak discharges above base of 100 $ft^3/s$ (2.8 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|
| Jan. 15 | 1830 | 570 | 16.1 | 6.33 | 1.929 |
| Jan. 17 | 1245 | 1,060 | 30.0 | 7.15 | 2.179 |
| Jan. 31 | 1715 | 250 | 7.08 | 5.55 | 1.692 |
| Feb. 11 | 0330 | 979 | 27.7 | 7.03 | 2.143 |
| Mar. 2 | 0700 | *6,660 | 189 | 15.66 | 4.773 |
| Mar. 5 | 1530 | 721 | 20.4 | 6.58 | 2.006 |
| Mar. 12 | 2100 | 354 | 10.0 | 5.76 | 1.756 |
| Mar. 22 | 1400 | 151 | 4.28 | 5.08 | 1.548 |
| Aug. 1 | 1815 | 110 | 3.12 | 4.90 | 1.494 |

No flow June 17 to July 31, Sept. 5-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .29 | .27 | .24 | .84 | 120 | 2400 | 8.5 | .96 | .13 | .00 | 8.0 | .06 |
| 2 | .26 | .21 | .27 | .84 | 51 | 3200 | 10 | 1.0 | .13 | .00 | .36 | .06 |
| 3 | .24 | .21 | .27 | .84 | 30 | 2000 | 8.7 | .98 | .13 | .00 | .16 | .06 |
| 4 | .23 | .21 | .27 | .75 | 21 | 300 | 7.7 | 1.0 | .12 | .00 | .14 | .06 |
| 5 | .21 | .21 | .27 | .84 | 16 | 332 | 6.5 | .88 | .12 | .00 | .13 | .00 |
| 6 | .57 | .31 | .27 | .93 | 14 | 286 | 6.0 | .82 | .11 | .00 | .13 | .00 |
| 7 | .56 | .24 | .27 | .90 | 17 | 154 | 5.3 | .76 | .10 | .00 | 3.6 | .00 |
| 8 | .46 | .24 | .27 | .93 | 24 | 92 | 5.1 | .69 | .10 | .00 | .36 | .00 |
| 9 | .21 | .24 | .31 | 1.0 | 22 | 58 | 6.4 | .69 | .08 | .00 | .16 | .00 |
| 10 | .37 | .21 | .27 | 1.9 | 33 | 42 | 6.5 | .63 | .08 | .00 | .15 | .00 |
| 11 | .32 | .24 | .27 | 19 | 528 | 40 | 7.1 | .57 | .07 | .00 | .14 | .00 |
| 12 | .30 | .24 | .31 | 20 | 188 | 214 | 6.0 | .51 | .06 | .00 | .21 | .00 |
| 13 | .30 | .24 | .31 | 12 | 110 | 200 | 5.5 | .43 | .06 | .00 | .16 | .00 |
| 14 | .29 | .21 | .27 | 9.4 | 146 | 131 | 4.8 | .38 | .06 | .00 | .13 | .00 |
| 15 | .25 | .21 | .31 | 240 | 118 | 87 | 3.9 | .34 | .05 | .00 | .15 | .00 |
| 16 | .21 | .21 | .35 | 130 | 95 | 56 | 3.6 | .30 | .05 | .00 | .14 | .00 |
| 17 | .18 | .24 | .35 | 343 | 72 | 38 | 2.9 | .27 | .00 | .00 | .14 | .00 |
| 18 | .18 | .21 | .35 | 167 | 50 | 27 | 2.4 | .25 | .00 | .00 | .14 | .00 |
| 19 | .16 | .21 | .40 | 65 | 37 | 21 | 2.1 | .25 | .00 | .00 | .13 | .00 |
| 20 | .16 | .24 | .35 | 46 | 31 | 17 | 2.0 | .22 | .00 | .00 | .13 | .00 |
| 21 | .16 | .24 | .40 | 31 | 29 | 14 | 1.7 | .20 | .00 | .00 | .13 | .00 |
| 22 | .20 | .21 | .53 | 23 | 26 | 63 | 1.5 | .17 | .00 | .00 | .12 | .00 |
| 23 | .23 | .21 | .53 | 18 | 26 | 52 | 1.4 | .16 | .00 | .00 | .12 | .00 |
| 24 | .18 | .21 | .53 | 15 | 23 | 31 | 1.2 | .16 | .00 | .00 | .11 | .00 |
| 25 | .16 | .24 | .53 | 13 | 19 | 22 | 1.1 | .16 | .00 | .00 | .10 | .00 |
| 26 | .15 | .24 | .67 | 11 | 17 | 17 | .99 | .16 | .00 | .00 | .09 | .00 |
| 27 | .15 | .21 | .75 | 9.7 | 15 | 14 | .97 | .16 | .00 | .00 | .08 | .00 |
| 28 | .15 | .21 | .84 | 8.7 | 911 | 12 | .89 | .15 | .00 | .00 | .08 | .00 |
| 29 | .25 | .21 | 1.2 | 7.9 | --- | 11 | .81 | .15 | .00 | .00 | .07 | .00 |
| 30 | .30 | .21 | 1.2 | 7.2 | --- | 9.2 | .78 | .14 | .00 | .00 | .06 | .00 |
| 31 | .28 | --- | .93 | 106 | --- | 8.1 | --- | .14 | --- | .00 | .06 | --- |
| TOTAL | 7.96 | 6.79 | 14.09 | 1511.67 | 2789 | 9948.3 | 122.34 | 13.68 | 1.45 | .00 | 15.68 | .24 |
| MEAN | .26 | .23 | .45 | 42.3 | 99.6 | 321 | 4.08 | .44 | .048 | .000 | .51 | .008 |
| MAX | .57 | .31 | 1.2 | 343 | 911 | 3200 | 10 | 1.0 | .13 | .00 | 8.0 | .06 |
| MIN | .15 | .21 | .24 | .75 | 14 | 8.1 | .78 | .14 | .00 | .00 | .06 | .00 |
| AC-FT | 16 | 13 | 28 | 2600 | 5530 | 19730 | 243 | 27 | 2.9 | .00 | 31 | .5 |

CAL YR 1977 TOTAL 388.23 MEAN 1.06 MAX 20 MIN .00 AC-FT 770
WTR YR 1978 TOTAL 14231.20 MEAN 39.0 MAX 3200 MIN .00 AC-FT 28230

09508300 WET BOTTOM CREEK NEAR CHILDS, AZ--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--August 1968 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | OXYGEN, DIS-SOLVED (MG/L) | COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) | STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 17... | 1300 | .22 | 430 | 7.7 | 23.0 | -- | -- | -- | 150 | 0 | 41 | 12 |
| NOV | | | | | | | | | | | | |
| 11... | 1500 | .25 | 425 | 7.8 | 18.0 | -- | -- | -- | 150 | 0 | 40 | 12 |
| DEC | | | | | | | | | | | | |
| 16... | 1400 | .35 | 410 | 7.8 | 12.5 | 10.1 | K4 | K26 | 150 | 0 | 41 | 12 |
| JAN | | | | | | | | | | | | |
| 11... | 1330 | 32 | 130 | 7.7 | 10.0 | 10.6 | 680 | 3400 | 86 | 42 | 28 | 3.8 |
| FEB | | | | | | | | | | | | |
| 09... | 1230 | 25 | 71 | 7.2 | 12.0 | 8.4 | -- | 48 | 26 | 9 | 6.9 | 2.1 |
| APR | | | | | | | | | | | | |
| 11... | 1530 | 6.7 | 137 | 7.6 | 18.5 | -- | -- | -- | 59 | 10 | 17 | 4.1 |
| MAY | | | | | | | | | | | | |
| 11... | 1245 | .74 | 275 | 7.8 | 21.5 | 7.3 | <1 | -- | 120 | 0 | 33 | 8.7 |
| JUN | | | | | | | | | | | | |
| 08... | 1230 | .14 | 360 | 7.6 | 27.0 | -- | <1 | K10 | 160 | 0 | 41 | 13 |

| DATE | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | BICAR-BONATE (MG/L AS HCO3) | CAR-BONATE (MG/L AS CO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER AC-FT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 17... | 32 | 1.1 | 1.4 | 240 | 0 | 2.2 | 13 | 2.0 | 37 | 244 | 259 | .33 |
| NOV | | | | | | | | | | | | |
| 11... | 33 | 1.2 | 1.3 | 220 | 0 | 6.9 | 20 | 2.2 | 34 | 250 | 258 | .34 |
| DEC | | | | | | | | | | | | |
| 16... | 32 | 1.1 | 1.2 | 230 | 0 | 7.6 | 13 | 2.3 | 34 | 242 | 256 | .33 |
| JAN | | | | | | | | | | | | |
| 11... | 9.1 | .4 | 1.3 | 53 | 0 | 11 | 4.9 | .8 | 21 | 99 | 106 | .13 |
| FEB | | | | | | | | | | | | |
| 09... | 4.2 | .4 | .7 | 21 | 0 | 11 | 3.1 | .4 | 16 | 57 | 55 | .08 |
| APR | | | | | | | | | | | | |
| 11... | 8.5 | .5 | 1.0 | 60 | 0 | 12 | 5.3 | .8 | 20 | 91 | 98 | .12 |
| MAY | | | | | | | | | | | | |
| 11... | 17 | .7 | 1.4 | 150 | -- | 15 | 13 | 1.3 | 30 | 176 | 193 | .24 |
| JUN | | | | | | | | | | | | |
| 08... | 25 | .9 | 1.7 | -- | -- | 17 | 14 | 1.4 | 25 | 228 | 234 | .31 |

K Based on non-ideal colony count.
< Actual value is known to be less than value shown.

09508300 WET BOTTOM CREEK NEAR CHILDS, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOVERABLE (UG/L AS BA) | CADMIUM TOTAL RECOVERABLE (UG/L AS CD) | CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) | COPPER, TOTAL RECOVERABLE (UG/L AS CU) | IRON, TOTAL RECOVERABLE (UG/L AS FE) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 17... | .07 | .02 | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | | | |
| 11... | -- | .00 | -- | -- | -- | -- | -- | -- |
| DEC | | | | | | | | |
| 16... | .02 | .00 | -- | -- | -- | -- | -- | -- |
| JAN | | | | | | | | |
| 11... | .08 | .07 | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | | | |
| 09... | .01 | .02 | 3 | 0 | 1 | 0 | 5 | 330 |
| APR | | | | | | | | |
| 11... | .05 | .01 | -- | -- | -- | -- | -- | -- |
| MAY | | | | | | | | |
| 11... | .03 | .01 | 10 | 100 | 0 | 10 | 4 | 10 |
| JUN | | | | | | | | |
| 08... | .02 | .00 | -- | -- | -- | -- | -- | -- |

| DATE | LEAD, TOTAL RECOVERABLE (UG/L AS PB) | MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) | MERCURY TOTAL RECOVERABLE (UG/L AS HG) | SELENIUM, TOTAL (UG/L AS SE) | SILVER, TOTAL RECOVERABLE (UG/L AS AG) | ZINC, TOTAL RECOVERABLE (UG/L AS ZN) | CYANIDE TOTAL (MG/L AS CN) |
|---|---|---|---|---|---|---|---|
| OCT | | | | | | | |
| 17... | -- | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | | |
| 11... | -- | -- | -- | -- | -- | -- | -- |
| DEC | | | | | | | |
| 16... | -- | -- | -- | -- | -- | -- | -- |
| JAN | | | | | | | |
| 11... | -- | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | | |
| 09... | 5 | 0 | .0 | 0 | 1 | 10 | .00 |
| APR | | | | | | | |
| 11... | -- | -- | -- | -- | -- | -- | -- |
| MAY | | | | | | | |
| 11... | 6 | 10 | .5 | 0 | 0 | 10 | .00 |
| JUN | | | | | | | |
| 08... | -- | -- | -- | -- | -- | -- | -- |

| DATE | TIME | TEMPERATURE (DEG C) | SEDIMENT, SUSPENDED (MG/L) | SEDIMENT DISCHARGE, SUSPENDED (T/DAY) |
|---|---|---|---|---|
| OCT | | | | |
| 17... | 1300 | 23.0 | 0 | .00 |
| NOV | | | | |
| 11... | 1500 | 18.0 | 0 | .00 |
| DEC | | | | |
| 16... | 1400 | 12.5 | 0 | .00 |
| JAN | | | | |
| 11... | 1330 | 10.0 | 29 | 2.5 |
| FEB | | | | |
| 09... | 1230 | 12.0 | 0 | .00 |
| APR | | | | |
| 11... | 1530 | 18.5 | 0 | .00 |
| MAY | | | | |
| 11... | 1245 | 21.5 | 0 | .00 |
| JUN | | | | |
| 08... | 1230 | 27.0 | 0 | .00 |

## 09508500 VERDE RIVER BELOW TANGLE CREEK, ABOVE HORSESHOE DAM, AZ

LOCATION.--Lat 34°04'23", long 111°42'56", in sec.35, T.9 N., R.6 E. (unsurveyed), Yavapai County, Hydrologic Unit 15060203, in Tonto National Forest, on right bank 1.3 mi (2.1 km) downstream from Tangle Creek and 9 mi (14 km) upstream from Horseshoe Dam.

DRAINAGE AREA.--5,872 $mi^2$ (15,208 $km^2$), includes 373 $mi^2$ (966 $km^2$) in Aubrey Valley Playa, a closed basin.

PERIOD OF RECORD.--August 1945 to current year.

REVISED RECORDS.--WSP 1283: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,029.0 ft (618.44 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. About 12,500 acres (51 $km^2$) above station are irrigated by surface water and ground water. Low flow slightly regulated by powerplant 32 mi (51 km) above station, using water from Fossil Creek. This station is above all major reservoirs on Verde River.

AVERAGE DISCHARGE.--33 years, 489 $ft^3/s$ (13.85 $m^3/s$), 354,300 acre-ft/yr (437 $hm^3/yr$); median of yearly mean discharges, 380 $ft^3/s$ (10.8 $m^3/s$), 275,000 acre-ft/yr (339 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 91,400 $ft^3/s$ (2,590 $m^3/s$) Mar. 1, 1978, gage height, 21.2 ft (6.462 m); minimum discharge, 48 $ft^3/s$ (1.36 $m^3/s$) June 17, 1956, July 18, 19, 1958, caused by power regulation on Fossil Creek; minimum daily, 61 $ft^3/s$ (1.73 $m^3/s$) July 18, 1958.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge since at least 1924, 100,000 $ft^3/s$ (2,830 $m^3/s$) Mar. 3, 1938, gage height, 19.0 ft (5.79 m), from floodmarks, based on comparison with peak discharge at other stations on Verde River.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*) and peak discharges above base of 4,000 $ft^3/s$ (113 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) | Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Jan. 15 | 2400 | 4,120 | 117 | 8.65 | 2.637 | Mar. 1 | 2230 | *91,400 | 2,590 | 21.2 | 6.462 |
| Jan. 17 | 1900 | 4,480 | 127 | 8.98 | 2.737 | Mar. 6 | 0100 | 24,300 | 688 | 14.80 | 4.511 |
| Feb. 1 | 1730 | 4,240 | 120 | 8.76 | 2.670 | Mar. 13 | 0530 | 6,390 | 181 | 10.02 | 3.054 |
| Feb. 11 | 0700 | 8,230 | 233 | 11.11 | 3.386 | Mar. 23 | 1230 | 11,000 | 312 | 11.87 | 3.618 |

Minimum daily, 95 $ft^3/s$ (2.69 $m^3/s$) July 13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 221 | 202 | 212 | 295 | 2670 | 65100 | 1100 | 257 | 164 | 115 | 152 | 130 |
| 2 | 223 | 213 | 227 | 286 | 2860 | 64700 | 1110 | 278 | 151 | 112 | 261 | 131 |
| 3 | 210 | 197 | 202 | 273 | 1600 | 54700 | 1620 | 304 | 156 | 108 | 278 | 130 |
| 4 | 199 | 217 | 219 | 265 | 1110 | 17400 | 2140 | 302 | 148 | 105 | 317 | 132 |
| 5 | 206 | 206 | 221 | 286 | 842 | 13400 | 1370 | 286 | 146 | 104 | 265 | 137 |
| 6 | 210 | 229 | 219 | 261 | 686 | 18800 | 995 | 269 | 144 | 104 | 265 | 138 |
| 7 | 939 | 213 | 235 | 265 | 1090 | 10200 | 781 | 273 | 145 | 102 | 229 | 152 |
| 8 | 514 | 213 | 221 | 265 | 2010 | 5480 | 678 | 267 | 148 | 105 | 252 | 158 |
| 9 | 709 | 242 | 242 | 261 | 2150 | 3640 | 639 | 252 | 148 | 104 | 389 | 156 |
| 10 | 272 | 223 | 229 | 276 | 1620 | 2910 | 624 | 244 | 145 | 100 | 236 | 167 |
| 11 | 271 | 234 | 246 | 324 | 5530 | 2650 | 751 | 231 | 140 | 96 | 189 | 159 |
| 12 | 250 | 215 | 246 | 286 | 3390 | 4610 | 726 | 231 | 138 | 96 | 197 | 148 |
| 13 | 246 | 225 | 235 | 334 | 2100 | 6500 | 730 | 210 | 132 | 95 | 304 | 146 |
| 14 | 231 | 217 | 246 | 298 | 2300 | 5580 | 617 | 202 | 135 | 96 | 316 | 149 |
| 15 | 212 | 201 | 235 | 1090 | 2140 | 4210 | 531 | 192 | 124 | 99 | 309 | 157 |
| 16 | 221 | 206 | 253 | 1940 | 1540 | 3020 | 474 | 190 | 125 | 104 | 278 | 156 |
| 17 | 219 | 192 | 223 | 2840 | 1180 | 2380 | 434 | 178 | 122 | 104 | 280 | 156 |
| 18 | 204 | 215 | 238 | 2390 | 914 | 1910 | 408 | 172 | 122 | 107 | 238 | 162 |
| 19 | 217 | 178 | 238 | 1220 | 751 | 1850 | 388 | 178 | 120 | 115 | 206 | 166 |
| 20 | 199 | 199 | 242 | 863 | 643 | 1840 | 375 | 173 | 112 | 117 | 180 | 170 |
| 21 | 204 | 202 | 259 | 840 | 650 | 2240 | 353 | 180 | 121 | 121 | 165 | 164 |
| 22 | 185 | 197 | 240 | 694 | 893 | 3560 | 330 | 177 | 111 | 125 | 157 | 153 |
| 23 | 204 | 212 | 255 | 545 | 1490 | 8950 | 300 | 170 | 107 | 142 | 144 | 158 |
| 24 | 202 | 206 | 242 | 477 | 1920 | 4940 | 300 | 165 | 107 | 138 | 139 | 163 |
| 25 | 199 | 225 | 252 | 417 | 1840 | 2880 | 290 | 164 | 105 | 139 | 146 | 190 |
| 26 | 170 | 225 | 252 | 340 | 1750 | 2180 | 271 | 156 | 107 | 186 | 139 | 242 |
| 27 | 202 | 221 | 263 | 377 | 1720 | 1750 | 271 | 156 | 106 | 188 | 136 | 241 |
| 28 | 195 | 215 | 259 | 353 | 10100 | 1590 | 263 | 160 | 105 | 182 | 139 | 239 |
| 29 | 177 | 204 | 291 | 332 | --- | 1490 | 242 | 167 | 107 | 145 | 138 | 236 |
| 30 | 202 | 223 | 300 | 342 | --- | 1370 | 263 | 175 | 113 | 132 | 133 | 225 |
| 31 | 213 | --- | 282 | 309 | --- | 1130 | --- | 159 | --- | 132 | 128 | --- |
| TOTAL | 8126 | 6367 | 7524 | 19344 | 57489 | 322960 | 19374 | 6518 | 3854 | 3718 | 6705 | 5011 |
| MEAN | 262 | 212 | 243 | 624 | 2053 | 10420 | 646 | 210 | 128 | 120 | 216 | 167 |
| MAX | 939 | 242 | 300 | 2840 | 10100 | 65100 | 2140 | 304 | 164 | 188 | 389 | 242 |
| MIN | 170 | 178 | 202 | 261 | 643 | 1130 | 242 | 156 | 105 | 95 | 128 | 130 |
| AC-FT | 16120 | 12630 | 14920 | 38370 | 114000 | 640600 | 38430 | 12930 | 7640 | 7370 | 13300 | 9940 |

CAL YR 1977 TOTAL 79563 MEAN 218 MAX 939 MIN 82 AC-FT 157800
WTR YR 1978 TOTAL 466990 MEAN 1279 MAX 65100 MIN 95 AC-FT 926300

## 09509500 RESERVOIR SYSTEM ON VERDE RIVER AT AND BELOW HORSESHOE DAM, AZ

LOCATION.--This system comprises two storage reservoirs created by Horseshoe and Bartlett Dams on Verde River, Hydrologic Unit 15060203. Gages on Horseshoe Reservoir, formed by Horseshoe Dam, lat 33°59'05", long 111°42'35", in sec.2, T.7 N., R.6 E. (unsurveyed); and Bartlett Reservoir, formed by Bartlett Dam, lat 33°49'05", long 111°37'52", in sec.34, T.6 N., R.7 E. (unsurveyed).

DRAINAGE AREA.--6,185 $mi^2$ (16,019 $km^2$), at Bartlett Dam.

PERIOD OF RECORD.--July 1939 to current year. Prior to 1946 published as Bartlett Reservoir at Bartlett Dam.

REVISED RECORDS.--WSP 1283: Drainage area.

GAGE.--Water-stage recorders on dam structures. Datum of gage on Horseshoe Reservoir is 1,900.00 ft (579.120 m) and on Bartlett Reservoir 1,599.46 ft (487.515 m) National Geodetic Vertical Datum of 1929. Prior to Oct. 14, 1964, Bartlett Reservoir gage datum was 10.00 ft (3.048 m) higher.

REMARKS.--Horseshoe Reservoir is formed by earthfill and rockfill dam; dam completed and storage began Nov. 15, 1945. Bartlett Reservoir is formed by concrete multiple-arch dam; dam completed May 1939 and storage began Feb. 5, 1939. Total capacity of the two reservoirs (capacity tables dated January 1965, based on survey in 1963) is 317,700 acre-ft (392 $hm^3$) divided as follows: Horseshoe Reservoir, 139,200 acre-ft (172 $hm^3$) between elevations 1,915.0 (583.69 m)—sill of outlet gage—and 2,026.0 ft (617.52 m)—top of spillway gates; Bartlett Reservoir, 178,500 acre-ft (220 $hm^3$) between elevations 1,619.46 ft (493.611 m)—10 ft (3.0 m) above sill of outlet gates—and 1,797.46 ft (547,866 m)—top of spillway gates. No dead storage. Records given herein represent usable contents. Water is used for irrigation of Salt River Valley and for municipal supply.

COOPERATION.--Capacity tables furnished by Salt River Valley Water Users' Association.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents of system, 318,000 acre-ft (392 $hm^3$) May 9, 1973; no storage at times when natural flow of river was passed through reservoir system.

EXTREMES FOR CURRENT YEAR.--Maximum contents of system, 317,500 acre-ft (391 $hm^3$) Mar. 27; minimum, 49,930 acre-ft (61.6 $hm^3$) Dec. 30.

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
INSTANTANEOUS OBSERVATIONS AT 2400

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 54390 | 64710 | 56830 | 50320 | 87300 | 276000 | 314400 | 303700 | 286300 | 243000 | 199400 | 176300 |
| 2 | 54900 | 64530 | 56710 | 50550 | 92730 | 289800 | 314400 | 302800 | 285400 | 241800 | 198000 | 175300 |
| 3 | 54350 | 64210 | 56630 | 50730 | 95490 | 274800 | 315300 | 302000 | 284200 | 241500 | 196700 | 174700 |
| 4 | 54670 | 63950 | 57650 | 50860 | 97320 | 275200 | 316700 | 301400 | 283600 | 240200 | 197000 | 174300 |
| 5 | 55020 | 63570 | 56660 | 51000 | 98530 | 273000 | 316500 | 300400 | 282700 | 238600 | 195700 | 173700 |
| 6 | 55540 | 63370 | 56710 | 51040 | 99530 | 281600 | 315400 | 299600 | 281900 | 237200 | 195700 | 172300 |
| 7 | 57370 | 63100 | 56740 | 51060 | 101200 | 263600 | 315200 | 299200 | 281100 | 235600 | 195700 | 171100 |
| 8 | 58490 | 62920 | 56760 | 51060 | 104800 | 252600 | 315200 | 298800 | 280200 | 234200 | 195600 | 169900 |
| 9 | 59110 | 62780 | 56890 | 51100 | 108500 | 261000 | 315300 | 298400 | 279200 | 232300 | 195700 | 169400 |
| 10 | 59720 | 62600 | 57100 | 51490 | 111700 | 268000 | 315200 | 297800 | 278000 | 231200 | 195400 | 169100 |
| 11 | 60340 | 62270 | 57290 | 51830 | 123600 | 273700 | 315400 | 297200 | 276900 | 229800 | 194800 | 168900 |
| 12 | 60510 | 61720 | 57320 | 51990 | 130100 | 283000 | 315100 | 296900 | 275800 | 227700 | 194300 | 168600 |
| 13 | 60910 | 61060 | 57250 | 52330 | 133900 | 295300 | 315100 | 296500 | 274900 | 225700 | 194200 | 168100 |
| 14 | 61270 | 60220 | 57260 | 52710 | 138900 | 305500 | 315100 | 296100 | 273800 | 223900 | 193900 | 167800 |
| 15 | 61580 | 59210 | 57100 | 55280 | 143700 | 311300 | 315000 | 295200 | 272400 | 222300 | 193400 | 167600 |
| 16 | 61970 | 58530 | 57010 | 59820 | 146800 | 312700 | 314800 | 294500 | 270700 | 221000 | 192600 | 167600 |
| 17 | 62230 | 57880 | 56480 | 66120 | 149200 | 313900 | 314600 | 293700 | 269300 | 218700 | 191600 | 166800 |
| 18 | 63150 | 57600 | 55960 | 70920 | 150900 | 313900 | 314600 | 293100 | 268000 | 216700 | 190500 | 165400 |
| 19 | 63690 | 57430 | 55420 | 73460 | 152000 | 314000 | 313800 | 292500 | 266900 | 214900 | 189300 | 164900 |
| 20 | 64100 | 57310 | 54730 | 74920 | 153100 | 313800 | 312800 | 291900 | 265100 | 213000 | 188200 | 165400 |
| 21 | 64520 | 57210 | 53920 | 76360 | 154100 | 314600 | 311800 | 291500 | 263180 | 210700 | 187000 | 165600 |
| 22 | 64890 | 57080 | 53210 | 77520 | 155600 | 315200 | 311200 | 291000 | 261200 | 208500 | 185900 | 165900 |
| 23 | 65280 | 56930 | 52770 | 78410 | 158000 | 315700 | 310900 | 290800 | 259100 | 206700 | 184900 | 166200 |
| 24 | 65620 | 56880 | 52310 | 79100 | 161200 | 316900 | 310500 | 290300 | 257300 | 205400 | 183800 | 166600 |
| 25 | 65950 | 57120 | 52030 | 79650 | 164500 | 317300 | 309800 | 289900 | 255300 | 204100 | 182600 | 166900 |
| 26 | 66260 | 57130 | 51470 | 80130 | 167400 | 316900 | 309100 | 289400 | 253200 | 203900 | 181500 | 197100 |
| 27 | 65740 | 57130 | 50770 | 80600 | 170400 | 317100 | 308300 | 289000 | 250400 | 204100 | 180700 | 167400 |
| 28 | 65240 | 57060 | 50110 | 80950 | 188600 | 317000 | 307200 | 288900 | 248200 | 203900 | 179800 | 167800 |
| 29 | 64990 | 56950 | 49970 | 81340 | --- | 317400 | 305900 | 288600 | 246100 | 203000 | 179100 | 167900 |
| 30 | 64890 | 56920 | 49960 | 81820 | --- | 316100 | 304800 | 288200 | 244400 | 201900 | 178200 | 168200 |
| 31 | 64920 | --- | 50040 | 82740 | --- | 314300 | --- | 287400 | --- | 200800 | 177200 | --- |
| MAX | 66260 | 64710 | 57650 | 82740 | 188600 | 317400 | 316700 | 303700 | 286300 | 243000 | 199400 | 197100 |
| MIN | 54350 | 56880 | 49960 | 50320 | 87300 | 252600 | 304800 | 287400 | 244400 | 200800 | 177200 | 164900 |
| (†) | +10480 | -8000 | -6880 | +32700 | +105860 | +125700 | -9500 | -17400 | -43000 | -43600 | -23600 | -9000 |

| | | | | | |
|---|---|---|---|---|---|
| CAL YR 1976 | | | | | † +17,190* |
| WTR YR 1977 | | | | | † -25,570* |
| CAL YR 1977 | MAX | 66260 | MIN | 5040 | † -1,500 |
| WTR YR 1978 | MAX | 317400 | MIN | 49960 | † +113,760 |

† Change in contents, in acre-feet.
* Not previously published.

## 09510000 VERDE RIVER BELOW BARTLETT DAM, AZ
(National stream-quality accounting network station)

LOCATION.--Lat 33°49'03", long 111°38'08", in SE¼ sec.33, T.6 N., R.7 E. (unsurveyed), Maricopa County, Hydrologic Unit 15060203, in Tonto National Forest, on right bank 1,300 ft (400 m) downstream from Bartlett Dam, 5.9 mi (9.5 km) upstream from Camp Creek, and 18 mi (29 km) east of town of Cave Creek.

DRAINAGE AREA.--6,185 $mi^2$ (16,019 $km^2$).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1888 to current year. (Monthly discharge only August 1888 to December 1903, and January 1910 to September 1913. For some periods prior to December 1903 gage heights, discharge measurements, and daily discharge hydrograph are published in reports of the Geological Survey.) Prior to October 1941, published under different names as follows: "near Fort McDowell," "at mouth," "above Salt River," "at McDowell," "at McDowell near Lehi," "near McDowell," and "above Camp Creek, near McDowell."

REVISED RECORDS.--WSP 1049: 1893, 1913-14, 1917-18, 1926-27, 1929. WSP 1213: 1915-16. WSP 1283: Drainage area.

GAGE.--Water-stage recorder at present site and datum since Mar. 4, 1975, at present site and at datum 2.00 ft (0.610 m) higher, Oct. 1, 1973, to Mar. 3, 1975, and 3.00 ft (0.914 m) higher, Oct. 1, 1961, to Dec. 29, 1965, and Mar. 11, 1971, to Sept. 30, 1973. Altitude of gage is 1,600 ft (488 m), from topographic map. Prior to Feb. 17, 1925, nonrecording gages at several sites about 20 mi (32 km) downstream at various datums. Feb. 17, 1925, to Dec. 31, 1941, water-stage recorder at two sites within 0.5 mi (0.8 km) upstream from Camp Creek, at various datums. Dec. 31, 1941, to Sept. 30, 1961, and Dec. 30, 1965, to Mar. 10, 1971, water-stage recorder at site 1.9 mi (3.1 km) downstream at datum 1,572.34 ft (479.249 m) National Geodetic Vertical Datum of 1929; since Mar. 2, 1978, used as supplementary gage. Feb. 18, 1975 to Feb. 26, 1978, supplementary water-stage recorder at site 30 ft upstream from main gage at same datum.

REMARKS.--Records good except those below 300 $ft^3/s$ (8.5 $m^3/s$), which are poor. About 12,500 acres (50.6 $km^2$) above station are irrigated by surface water and ground water. Flow completely regulated by Bartlett Reservoir since Feb. 5, 1939, and Horseshoe Reservoir since Nov. 15, 1945 (see preceding page), except during periods of spill. Water diverted downstream for municipal supply of city of Phoenix, and for irrigation in Fort McDowell Indian Reservation. Remainder (except during infrequent periods of extreme flooding) is diverted at Granite Reef Dam on Salt River 27 mi (43 km) downstream for irrigation in Salt River Valley, and for municipal use by the city of Phoenix.

AVERAGE DISCHARGE (adjusted for storage in Bartlett and Horseshoe Reservoirs).--90 years, 659 $ft^3/s$ (18.66 $m^3/s$), 477,000 acre-ft/yr (588 $hm^3/yr$); median of yearly mean discharge, 535 $ft^3/s$ (15.2 $m^3/s$), 388,000 acre-ft/yr (473 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--1888-1939: Maximum discharge not determined, probably over 150,000 $ft^3/s$ (4,250 $m^3/s$) Feb. 24, 1891; minimum daily, 29 $ft^3/s$ (0.82 $m^3/s$) July 11, 13, 1901. Floods of Nov. 27, 1905, and Mar. 4, 1938, reached maximum discharges of 96,000 $ft^3/s$ (2,720 $m^3/s$) and 95,000 $ft^3/s$ (2,690 $m^3/s$), respectively.
1939-78: Maximum discharge, 101,000 $ft^3/s$ (2,860 $m^3/s$) Mar. 2, 1978; no flow at Bartlett Dam at times when gates in dam were closed.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 101,000 $ft^3/s$ (2,860 $m^3/s$) Mar. 2, gage height, 25.9 ft (7.894 m); no flow Sept. 15-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 25 | 281 | 240 | 165 | 110 | 14400 | 1190 | 848 | 641 | 868 | 832 | 669 |
| 2 | 25 | 318 | 253 | 166 | 129 | 64500 | 1180 | 858 | 742 | 669 | 901 | 529 |
| 3 | 25 | 369 | 235 | 166 | 161 | 67600 | 1180 | 801 | 623 | 588 | 942 | 469 |
| 4 | 15 | 360 | 201 | 166 | 212 | 18400 | 1480 | 637 | 499 | 798 | 757 | 380 |
| 5 | 10 | 379 | 190 | 188 | 243 | 17600 | 1820 | 642 | 588 | 976 | 490 | 390 |
| 6 | 12 | 367 | 184 | 231 | 202 | 14800 | 1780 | 586 | 588 | 1020 | 250 | 530 |
| 7 | 16 | 334 | 181 | 235 | 178 | 18400 | 887 | 455 | 606 | 1020 | 250 | 624 |
| 8 | 12 | 298 | 196 | 235 | 161 | 12400 | 598 | 455 | 695 | 1010 | 250 | 703 |
| 9 | 9.4 | 305 | 195 | 222 | 146 | 100 | 714 | 455 | 798 | 996 | 300 | 449 |
| 10 | 12 | 343 | 202 | 182 | 161 | 50 | 747 | 455 | 695 | 900 | 480 | 270 |
| 11 | 12 | 404 | 180 | 179 | 91 | 50 | 736 | 455 | 695 | 938 | 554 | 200 |
| 12 | 10 | 515 | 170 | 221 | 131 | 50 | 942 | 455 | 695 | 1180 | 490 | 140 |
| 13 | 8.6 | 566 | 227 | 190 | 120 | 50 | 847 | 455 | 560 | 1200 | 330 | 110 |
| 14 | 7.0 | 675 | 229 | 139 | 49 | 50 | 689 | 455 | 490 | 1080 | 450 | 75 |
| 15 | 7.0 | 675 | 266 | 89 | 71 | 1290 | 580 | 455 | 1100 | 1040 | 546 | .00 |
| 16 | 7.0 | 561 | 254 | 123 | 44 | 3600 | 507 | 455 | 1190 | 957 | 672 | .00 |
| 17 | 7.1 | 521 | 487 | 110 | 93 | 3160 | 467 | 455 | 1020 | 1030 | 789 | .00 |
| 18 | 8.0 | 325 | 480 | 97 | 101 | 3160 | 397 | 455 | 827 | 947 | 848 | .00 |
| 19 | 18 | 267 | 482 | 128 | 74 | 3120 | 887 | 446 | 817 | 1030 | 848 | .00 |
| 20 | 22 | 227 | 573 | 142 | 119 | 2980 | 939 | 427 | 1040 | 1210 | 848 | .00 |
| 21 | 18 | 202 | 634 | 143 | 139 | 2980 | 750 | 427 | 1240 | 1230 | 786 | .00 |
| 22 | 18 | 245 | 588 | 144 | 159 | 3530 | 602 | 369 | 1330 | 1200 | 661 | .00 |
| 23 | 17 | 221 | 489 | 133 | 179 | 8400 | 442 | 300 | 1310 | 1000 | 713 | .00 |
| 24 | 17 | 198 | 392 | 138 | 182 | 4930 | 410 | 300 | 1230 | 801 | 731 | .00 |
| 25 | 16 | 203 | 373 | 153 | 184 | 2500 | 571 | 300 | 1200 | 738 | 750 | .00 |
| 26 | 16 | 186 | 557 | 153 | 194 | 1400 | 619 | 300 | 1310 | 494 | 620 | .00 |
| 27 | 335 | 185 | 614 | 147 | 190 | 2160 | 739 | 300 | 1330 | 446 | 566 | .00 |
| 28 | 452 | 224 | 607 | 148 | 63 | 1700 | 848 | 300 | 1350 | 482 | 561 | .00 |
| 29 | 332 | 231 | 416 | 149 | --- | 1780 | 848 | 300 | 1240 | 673 | 494 | .00 |
| 30 | 235 | 223 | 352 | 143 | --- | 2150 | 848 | 321 | 1080 | 773 | 600 | .00 |
| 31 | 205 | --- | 203 | 129 | --- | 2440 | --- | 546 | --- | 817 | 669 | --- |
| TOTAL | 1929.1 | 10208 | 10650 | 4954 | 3886 | 279730 | 25244 | 14468 | 27529 | 28111 | 18978 | 5538.00 |
| MEAN | 62.2 | 340 | 344 | 160 | 139 | 9024 | 841 | 467 | 918 | 907 | 612 | 185 |
| MAX | 452 | 675 | 634 | 235 | 243 | 67600 | 1820 | 858 | 1350 | 1230 | 942 | 703 |
| MIN | 7.0 | 185 | 170 | 89 | 44 | 50 | 397 | 300 | 490 | 446 | 250 | .00 |
| AC-FT | 3830 | 20250 | 21120 | 9830 | 7710 | 554800 | 50070 | 28700 | 54600 | 55760 | 37640 | 10980 |

CAL YR 1977 TOTAL 73828.10 MEAN 202 MAX 1360 MIN 5.0 AC-FT 146400
WTR YR 1978 TOTAL 431225.10 MEAN 1181 MAX 67600 MIN .00 AC-FT 855300

09510000 VERDE RIVER BELOW BARTLETT DAM, AZ--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--December 1950 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1964 to current year.
WATER TEMPERATURES: December 1950 to current year.

REMARKS.--Unpublished daily specific conductance measurements for period December 1950 to September 1964 available from district office in Tucson, Ariz.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 958 micromhos Nov. 10, 1956; minimum daily, 195 micromhos May 13, 14, 1973.
WATER TEMPERATURES: Maximum, 32.0°C July 18, Aug. 14, 1951; minimum, 5.0°C Jan. 30, 1952.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 653 micromhos Dec. 4; minimum daily, 290 micromhos July 20, 21, 22, 24, Sept. 1.
WATER TEMPERATURES: Maximum, 25.0°C Oct. 15; minimum, 9.0°C Jan. 24, Feb. 16.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | TUR-BID-ITY (JTU) | TUR-BID-ITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) | COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) |
|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | |
| 28... | 1600 | 232 | 678 | 8.2 | 15.5 | 2 | -- | 9.5 | K8 |
| DEC | | | | | | | | | |
| 29... | 1030 | 360 | 648 | 8.4 | 11.5 | 1 | -- | 10.3 | <1 |
| JAN | | | | | | | | | |
| 23... | 1600 | 142 | 610 | 8.5 | 11.5 | 1 | -- | 10.6 | <1 |
| FEB | | | | | | | | | |
| 27... | 1600 | 162 | 550 | 8.6 | 12.0 | 3 | -- | 9.7 | K2 |
| APR | | | | | | | | | |
| 06... | 1000 | 2100 | 200 | 7.8 | 14.0 | 30 | -- | 9.7 | K8 |
| MAY | | | | | | | | | |
| 02... | 0945 | 839 | 150 | 6.9 | 10.0 | 65 | -- | 10.4 | <1 |
| JUN | | | | | | | | | |
| 06... | 1000 | 588 | 182 | 7.3 | 11.5 | 25 | -- | -- | <1 |
| JUL | | | | | | | | | |
| 05... | 1045 | 957 | 248 | 7.7 | 15.0 | -- | 4.5 | 11.2 | <1 |
| AUG | | | | | | | | | |
| 01... | 1015 | 817 | 295 | 7.9 | 18.5 | -- | 2.5 | 11.6 | K5 |
| 29... | 0845 | 477 | 305 | 7.4 | 19.5 | -- | 477 | 11.2 | <1 |
| SEP | | | | | | | | | |
| 26... | 0845 | <10 | 348 | 8.5 | 21.5 | -- | 1.1 | 17.6 | K13 |

| DATE | STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | BICAR-BONATE (MG/L AS HCO3) |
|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | |
| 28... | K2 | 280 | 30 | 51 | 38 | 41 | 1.1 | 4.5 | 310 |
| DEC | | | | | | | | | |
| 29... | K6 | 280 | 28 | 49 | 38 | 40 | 1.0 | 3.9 | 300 |
| JAN | | | | | | | | | |
| 23... | K4 | 280 | 21 | 48 | 39 | 40 | 1.0 | 4.0 | 300 |
| FEB | | | | | | | | | |
| 27... | K2 | 250 | 32 | 44 | 33 | 33 | .9 | 3.2 | 260 |
| APR | | | | | | | | | |
| 06... | 100 | 97 | 7 | 24 | 9.0 | 8.3 | .4 | 1.8 | 110 |
| MAY | | | | | | | | | |
| 02... | K20 | 79 | 8 | 21 | 6.4 | 4.2 | .2 | 1.9 | 87 |
| JUN | | | | | | | | | |
| 06... | -- | 90 | 9 | 23 | 8.0 | 6.4 | .3 | 2.0 | 99 |
| JUL | | | | | | | | | |
| 05... | K5 | 130 | 16 | 29 | 13 | 9.5 | .4 | 1.9 | -- |
| AUG | | | | | | | | | |
| 01... | 8 | 120 | 4 | 30 | 12 | 12 | .5 | 2.1 | -- |
| 29... | K4 | 140 | 13 | 34 | 14 | 14 | .5 | 2.1 | -- |
| SEP | | | | | | | | | |
| 26... | K12 | 170 | 6 | 40 | 16 | 16 | .5 | 2.4 | -- |

K Based on non-ideal colony count.
< Actual value is known to be less than value shown.

09510000 VERDE RIVER BELOW BARTLETT DAM, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | CARBONATE (MG/L AS CO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | SOLIDS, DISSOLVED (TONS PER AC-FT) |
|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | |
| 28... | 0 | 75 | 27 | .5 | 12 | 411 | 402 | .56 |
| DEC | | | | | | | | |
| 29... | 3 | 71 | 25 | .5 | 14 | 389 | 392 | .53 |
| JAN | | | | | | | | |
| 23... | 8 | 71 | 23 | .4 | 14 | 375 | 395 | .51 |
| FEB | | | | | | | | |
| 27... | 0 | 58 | 22 | .4 | 15 | 314 | 337 | .43 |
| APR | | | | | | | | |
| 06... | 0 | 14 | 5.6 | .2 | 14 | 131 | 131 | .18 |
| MAY | | | | | | | | |
| 02... | 0 | 11 | 3.0 | .1 | 13 | 109 | 104 | .15 |
| JUN | | | | | | | | |
| 06... | 0 | 13 | 3.7 | .2 | 14 | 126 | 119 | .17 |
| JUL | | | | | | | | |
| 05... | -- | 25 | 8.4 | .2 | 16 | 156 | 169 | .21 |
| AUG | | | | | | | | |
| 01... | -- | 16 | 7.3 | .1 | 16 | 177 | 168 | .24 |
| 29... | -- | 20 | 7.9 | .2 | 16 | 190 | 186 | .26 |
| SEP | | | | | | | | |
| 26... | -- | 22 | 13 | .3 | 15 | 218 | 221 | .30 |

| DATE | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN, AMMONIA TOTAL (MG/L AS N) | NITROGEN, ORGANIC TOTAL (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | NITROGEN, NH4 + ORG. SUSP. TOTAL (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N) | NITROGEN, TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | PHOSPHORUS, DISSOLVED (MG/L AS P) |
|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | |
| 28... | -- | -- | -- | -- | -- | .18 | -- | .01 | .00 |
| DEC | | | | | | | | | |
| 29... | .05 | .02 | -- | -- | -- | .32 | -- | .00 | .01 |
| JAN | | | | | | | | | |
| 23... | .04 | .07 | -- | -- | -- | .07 | -- | .03 | .02 |
| FEB | | | | | | | | | |
| 27... | .15 | .02 | .25 | .27 | .14 | .13 | .42 | .06 | .04 |
| APR | | | | | | | | | |
| 06... | .20 | .10 | .34 | .44 | .00 | .44 | .64 | .11 | .05 |
| MAY | | | | | | | | | |
| 02... | .26 | .11 | .23 | .34 | .16 | .18 | .60 | .20 | .07 |
| JUN | | | | | | | | | |
| 06... | .33 | .04 | .31 | .35 | .16 | .19 | .68 | .11 | .05 |
| JUL | | | | | | | | | |
| 05... | .22 | .00 | .30 | .30 | .03 | .27 | .52 | .08 | .05 |
| AUG | | | | | | | | | |
| 01... | .14 | .01 | .16 | .17 | .00 | .20 | .31 | .04 | .03 |
| 29... | .09 | .02 | .73 | .75 | .54 | .21 | .84 | .05 | .04 |
| SEP | | | | | | | | | |
| 26... | .01 | .00 | 1.1 | 1.1 | .90 | .20 | 1.1 | .08 | .02 |

09510000 VERDE RIVER BELOW BARTLETT DAM, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | ARSENIC TOTAL (UG/L AS AS) | ARSENIC DIS-SOLVED (UG/L AS AS) | BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) | BARIUM, DIS-SOLVED (UG/L AS BA) | CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) | CADMIUM DIS-SOLVED (UG/L AS CD) | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) | CHRO-MIUM, DIS-SOLVED (UG/L AS CR) | COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) | COBALT, DIS-SOLVED (UG/L AS CO) |
|---|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | | |
| 28... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| DEC | | | | | | | | | | |
| 29... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JAN | | | | | | | | | | |
| 23... | 18 | 16 | 100 | 100 | 2 | 2 | 10 | 10 | 0 | 0 |
| FEB | | | | | | | | | | |
| 27... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| APR | | | | | | | | | | |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MAY | | | | | | | | | | |
| 02... | 8 | 5 | 200 | 100 | 1 | 1 | 0 | 10 | 3 | 0 |
| JUN | | | | | | | | | | |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | | |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | | |
| 01... | 11 | 7 | 200 | 40 | 1 | <1 | 10 | 0 | 2 | 1 |
| 29... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

| DATE | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) | COPPER, DIS-SOLVED (UG/L AS CU) | IRON, TOTAL RECOV-ERABLE (UG/L AS FE) | IRON, DIS-SOLVED (UG/L AS FE) | LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) | LEAD, DIS-SOLVED (UG/L AS PB) | MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) | MANGA-NESE, DIS-SOLVED (UG/L AS MN) | MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) | MERCURY DIS-SOLVED (UG/L AS HG) |
|---|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | | |
| 28... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| DEC | | | | | | | | | | |
| 29... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JAN | | | | | | | | | | |
| 23... | 3 | 2 | 70 | 20 | 7 | 2 | 0 | 0 | .2 | .0 |
| FEB | | | | | | | | | | |
| 27... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| APR | | | | | | | | | | |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MAY | | | | | | | | | | |
| 02... | 13 | 5 | 1900 | 20 | 20 | 9 | 40 | 0 | .0 | .0 |
| JUN | | | | | | | | | | |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | | |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | | |
| 01... | 5 | 2 | 140 | <10 | 4 | 0 | 60 | 40 | .0 | .0 |
| 29... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

< Actual value is known to be less than value shown.

09510000 VERDE RIVER BELOW BARTLETT DAM, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | SELENIUM, TOTAL (UG/L AS SE) | SELENIUM, DISSOLVED (UG/L AS SE) | SILVER, TOTAL RECOVERABLE (UG/L AS AG) | SILVER, DISSOLVED (UG/L AS AG) | ZINC, TOTAL RECOVERABLE (UG/L AS ZN) | ZINC, DISSOLVED (UG/L AS ZN) | CARBON, ORGANIC TOTAL (MG/L AS C) | CARBON, ORGANIC DISSOLVED (MG/L AS C) | CARBON, ORGANIC SUSPENDED TOTAL (MG/L AS C) |
|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | |
| 28... | -- | -- | -- | -- | -- | -- | 2.8 | -- | -- |
| DEC | | | | | | | | | |
| 29... | -- | -- | -- | -- | -- | -- | 1.8 | -- | -- |
| JAN | | | | | | | | | |
| 23... | 1 | 1 | 0 | 0 | 10 | 10 | -- | -- | -- |
| FEB | | | | | | | | | |
| 27... | -- | -- | -- | -- | -- | -- | 2.6 | -- | -- |
| APR | | | | | | | | | |
| 06... | -- | -- | -- | -- | -- | -- | 5.4 | -- | -- |
| MAY | | | | | | | | | |
| 02... | 0 | 0 | 0 | 0 | 10 | 10 | -- | 9.0 | .4 |
| JUN | | | | | | | | | |
| 06... | -- | -- | -- | -- | -- | -- | 6.7 | -- | -- |
| JUL | | | | | | | | | |
| 05... | -- | -- | -- | -- | -- | -- | 4.8 | -- | -- |
| AUG | | | | | | | | | |
| 01... | 0 | 0 | 0 | 0 | 30 | 5 | 5.0 | -- | -- |
| 29... | -- | -- | -- | -- | -- | -- | -- | 5.9 | .2 |

| DATE | TIME | TEMPERATURE (DEG C) | SEDIMENT, SUSPENDED (MG/L) | SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM | SEDIMENT DISCHARGE, SUSPENDED (T/DAY) | LENGTH OF EXPOSURE (DAYS) | PHYTOPLANKTON, TOTAL (CELLS PER ML) | PERIPHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M | PERIPHYTON BIOMASS ASH WEIGHT G/SQ M | CHLOR-A PERIPHYTON CHROMOGRAPHIC FLUOROM (MG/M2) | CHLOR-B PERIPHYTON CHROMOGRAPHIC FLUOROM (MG/M2) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | | | |
| 28... | 1600 | 15.5 | 1 | 67 | .63 | -- | 510 | -- | -- | -- | -- |
| DEC | | | | | | | | | | | |
| 29... | 1030 | 11.5 | 2 | 67 | 1.9 | -- | -- | -- | -- | -- | -- |
| JAN | | | | | | | | | | | |
| 23... | 1600 | 11.5 | 9 | 68 | 3.5 | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | | | | | | |
| 27... | 1600 | 12.0 | -- | -- | -- | 35 | -- | 12.4 | 10.0 | 10.3 | .000 |
| APR | | | | | | | | | | | |
| 06... | 1000 | 14.0 | 24 | 64 | 136 | -- | 230 | -- | -- | -- | -- |
| MAY | | | | | | | | | | | |
| 02... | 0945 | 10.0 | 0 | -- | .00 | -- | -- | -- | -- | -- | -- |
| JUN | | | | | | | | | | | |
| 06... | 1000 | 11.5 | 16 | 86 | 25 | -- | 0 | -- | -- | -- | -- |
| JUL | | | | | | | | | | | |
| 05... | 1045 | 15.0 | 7 | 93 | 18 | -- | 210 | -- | -- | -- | -- |
| AUG | | | | | | | | | | | |
| 01... | 1015 | 18.5 | 3 | 67 | 6.6 | 27 | 38 | 3.70 | 1.81 | .120 | .000 |
| 29... | 0845 | 19.5 | 10 | 100 | 13 | -- | 110 | -- | -- | -- | -- |
| SEP | | | | | | | | | | | |
| 26... | 0845 | 21.5 | 7 | 82 | -- | -- | 7500 | -- | -- | -- | -- |

09510000 VERDE RIVER BELOW BARTLETT DAM, AZ--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | --- | 560 | 609 | 583 | 578 | | | | | --- | 310 | 290 |
| 2 | --- | 570 | 619 | 623 | 572 | | | | | --- | 310 | 292 |
| 3 | --- | 570 | 605 | 572 | 578 | | | | | --- | 310 | 292 |
| 4 | --- | 570 | 653 | 590 | 578 | | | | | --- | 310 | 292 |
| 5 | --- | 570 | 649 | 588 | 578 | | | | | --- | 319 | 292 |
| 6 | --- | 580 | 586 | 583 | 580 | | | | | --- | 318 | 295 |
| 7 | --- | 580 | 592 | 589 | 578 | | | | | --- | 318 | 297 |
| 8 | 600 | 570 | 597 | 601 | 581 | | | | | --- | 311 | 299 |
| 9 | 590 | 580 | 599 | 591 | 608 | | | | | --- | 311 | 300 |
| 10 | 580 | 610 | 592 | 591 | 573 | | | | | --- | 311 | 305 |
| 11 | 570 | 590 | 597 | 598 | 570 | | | | | --- | 310 | 300 |
| 12 | 560 | 580 | 620 | 576 | 593 | | | | | --- | 313 | 305 |
| 13 | 580 | 590 | 652 | 600 | 567 | | | | | --- | 315 | 305 |
| 14 | 550 | 630 | 620 | 629 | 580 | | | | | --- | 315 | 305 |
| 15 | 590 | 580 | 635 | 620 | 594 | | | | | --- | 318 | 310 |
| 16 | 560 | 600 | 630 | 631 | 578 | | | | | --- | 318 | 315 |
| 17 | 580 | 630 | 627 | 611 | 578 | | | | | --- | 319 | 320 |
| 18 | 590 | 640 | 631 | 600 | 581 | | | | | --- | 321 | 332 |
| 19 | 580 | 600 | 636 | 610 | 587 | | | | | --- | 318 | 340 |
| 20 | 570 | 630 | 630 | 621 | 574 | | | | | 290 | 320 | 350 |
| 21 | 570 | 600 | 641 | 621 | 580 | | | | | 290 | 320 | --- |
| 22 | 590 | 620 | 622 | 622 | 578 | | | | | 290 | 321 | --- |
| 23 | 570 | 620 | 631 | 620 | 570 | | | | | 295 | 328 | --- |
| 24 | 590 | 620 | 636 | 620 | 570 | | | | | 290 | 328 | --- |
| 25 | 590 | 620 | 636 | 596 | 568 | | | | | 300 | 326 | --- |
| 26 | 590 | 630 | 631 | 615 | 560 | | | | | 310 | 329 | --- |
| 27 | 600 | 620 | 640 | 615 | --- | | | | | 295 | 331 | --- |
| 28 | 590 | 610 | 635 | 614 | --- | | | | | 300 | 330 | --- |
| 29 | 600 | 620 | 650 | 629 | --- | | | | | 305 | 330 | --- |
| 30 | 590 | 620 | 648 | 620 | --- | | | | | 300 | 330 | --- |
| 31 | 600 | --- | 644 | 621 | --- | | | | | 300 | 330 | --- |
| MAX | 600 | 640 | 653 | 631 | 608 | | | | | 310 | 331 | 350 |
| MIN | 550 | 560 | 588 | 572 | 560 | | | | | 290 | 310 | 290 |

WTR YR 1978 MAX 653 MIN 290

09510000 VERDE RIVER BELOW BARTLETT DAM, AZ--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | --- | 17.0 | 15.0 | 11.0 | 11.0 | | | | | --- | 21.0 | 20.0 |
| 2 | --- | --- | 15.0 | 11.0 | 11.0 | | | | | --- | 21.0 | 20.0 |
| 3 | --- | 18.0 | 15.0 | 11.0 | 11.0 | | | | | --- | 21.0 | 20.0 |
| 4 | --- | 18.0 | 15.0 | 11.0 | 11.0 | | | | | --- | 22.0 | 20.0 |
| 5 | --- | 19.0 | 15.0 | 10.0 | 11.0 | | | | | --- | 20.0 | 20.0 |
| 6 | --- | 18.0 | 15.0 | 10.0 | 11.0 | | | | | --- | 20.0 | 21.0 |
| 7 | --- | 17.0 | 15.0 | 10.0 | 11.0 | | | | | --- | 20.0 | 22.0 |
| 8 | 24.0 | 17.0 | 14.0 | 10.0 | 11.0 | | | | | --- | 21.0 | 22.0 |
| 9 | 23.0 | 19.0 | 14.0 | 10.0 | 11.0 | | | | | --- | 20.0 | 22.0 |
| 10 | 24.0 | 18.0 | 15.0 | 10.0 | 10.0 | | | | | --- | 20.0 | 22.0 |
| 11 | 24.0 | 18.0 | 15.0 | 10.0 | 10.0 | | | | | --- | 21.0 | 22.0 |
| 12 | 24.0 | 18.0 | 14.0 | 10.0 | 10.0 | | | | | --- | 21.0 | 22.0 |
| 13 | 24.0 | 17.0 | 14.0 | 13.0 | 10.0 | | | | | --- | 21.0 | 22.0 |
| 14 | 24.0 | 18.0 | 14.0 | 11.0 | 10.0 | | | | | --- | 21.0 | 20.0 |
| 15 | 25.0 | 17.0 | 14.0 | 10.0 | 10.0 | | | | | --- | 21.0 | 21.0 |
| 16 | 23.0 | 17.0 | 14.0 | 11.0 | 9.0 | | | | | --- | 21.0 | 22.0 |
| 17 | 21.0 | 17.0 | 14.0 | --- | 10.0 | | | | | --- | 21.0 | 22.0 |
| 18 | 20.0 | 18.0 | 14.0 | 11.0 | 10.0 | | | | | --- | 20.0 | 20.0 |
| 19 | 21.0 | 18.0 | 13.0 | 11.0 | 10.0 | | | | | --- | 20.0 | 20.0 |
| 20 | 21.0 | 17.0 | 13.0 | 12.0 | 10.0 | | | | | 20.0 | 21.0 | --- |
| 21 | 20.0 | 16.0 | 12.0 | 11.0 | 10.0 | | | | | 20.0 | 21.0 | --- |
| 22 | 20.0 | 15.0 | 12.0 | 10.0 | 10.0 | | | | | 20.0 | 20.0 | --- |
| 23 | 20.0 | 15.0 | 12.0 | 11.0 | 10.0 | | | | | 20.0 | 20.0 | --- |
| 24 | 20.0 | 15.0 | 12.0 | 9.0 | 10.0 | | | | | 20.0 | 22.0 | --- |
| 25 | 20.0 | 15.0 | 12.0 | 11.0 | 10.0 | | | | | 21.0 | 22.0 | --- |
| 26 | 21.0 | 16.0 | 11.0 | 10.0 | 10.0 | | | | | 21.0 | 22.0 | --- |
| 27 | 19.0 | 15.0 | 11.0 | 11.0 | --- | | | | | 21.0 | 22.0 | --- |
| 28 | 19.0 | 15.0 | 11.0 | 12.0 | --- | | | | | 21.0 | 22.0 | --- |
| 29 | 19.0 | 14.0 | 11.0 | 11.0 | --- | | | | | 21.0 | 22.0 | --- |
| 30 | 18.0 | 15.0 | 11.0 | 11.0 | --- | | | | | 21.0 | 22.0 | --- |
| 31 | 18.0 | --- | 11.0 | 12.0 | --- | | | | | 21.0 | 20.0 | --- |
| MAX | 25.0 | 19.0 | 15.0 | 13.0 | 11.0 | | | | | 21.0 | 22.0 | 22.0 |
| MIN | 18.0 | 14.0 | 11.0 | 9.0 | 9.0 | | | | | 20.0 | 20.0 | 20.0 |

WTR YR 1978 MAX 25.0 MIN 9.0

09510000 VERDE RIVER BELOW BARTLETT DAM, AZ--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

PHYTOPLANKTON

| DATE | NOV 28,77 | APR 6,78 | JUN 6,78 | JUL 5,78 |
|---|---|---|---|---|
| TIME | 1600 | 1000 | 1000 | 1045 |
| TOTAL CELLS/ML | 510 | 230 | 0 | 210 |
| DIVERSITY: DIVISION | 1.5 | 1.0 | 0.0 | 0.0 |
| .CLASS | 1.5 | 1.3 | 0.0 | 0.0 |
| ..ORDER | 2.0 | 2.0 | 0.0 | 0.0 |
| ...FAMILY | 2.5 | 2.0 | 0.0 | 0.0 |
| ....GENUS | 0.0 | 0.0 | 0.0 | 0.0 |

| ORGANISM | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT |
|---|---|---|---|---|---|---|---|---|
| CHLOROPHYTA (GREEN ALGAE) | | | | | | | | |
| .CHLOROPHYCEAE | | | | | | | | |
| ..CHLOROCOCCALES | | | | | | | | |
| ...CHARACIACEAE | | | | | | | | |
| ....SCHRUEDERIA | 22 | 4 | -- | - | -- | - | -- | - |
| ...OOCYSTACEAE | | | | | | | | |
| ....ANKISTRODESMUS | -- | - | -- | - | -- | - | -- | - |
| ....KIRCHNERIELLA | 45 | 9 | -- | - | -- | - | -- | - |
| ....OOCYSTIS | 17 | 3 | -- | - | -- | - | -- | - |
| ...SCENEDESMACEAE | | | | | | | | |
| ....ACTINASTRUM | -- | - | 110# | 47 | -- | - | -- | - |
| ....CRUCIGENIA | 67 | 13 | -- | - | -- | - | -- | - |
| ....SCENEDESMUS | -- | - | -- | - | -- | - | -- | - |
| ..TETRASPORALES | | | | | | | | |
| ...PALMELLACEAE | | | | | | | | |
| ....SPHAERUCYSTIS | 61 | 12 | -- | - | -- | - | -- | - |
| ..VOLVOCALES | | | | | | | | |
| ...CHLAMYDOMONADACEAE | | | | | | | | |
| ....CHLAMYDOMONAS | -- | - | 27 | 12 | -- | - | -- | - |
| ..ZYGNEMATALES | | | | | | | | |
| ...ZYGNEMATACEAE | | | | | | | | |
| ....SPIROGYRA | -- | - | -- | - | -- | - | 210# | 100 |
| CHRYSOPHYTA | | | | | | | | |
| .BACILLARIOPHYCEAE | | | | | | | | |
| ..CENTRALES | | | | | | | | |
| ...COSCINODISCACEAE | | | | | | | | |
| ....CYCLOTELLA | 6 | 1 | 54# | 24 | -- | - | -- | - |
| ....MELOSIRA | 11 | 2 | -- | - | -- | - | -- | - |
| ..PENNALES | | | | | | | | |
| ...ACHNANTHACEAE | | | | | | | | |
| ....COCCONEIS | -- | - | -- | - | -- | - | -- | - |
| ...FRAGILARIACEAE | | | | | | | | |
| ....SYNEDRA | 17 | 3 | 14 | 6 | -- | - | -- | - |
| ...GOMPHONEMATACEAE | | | | | | | | |
| ....GOMPHONEMA | -- | - | -- | - | -- | - | -- | - |
| ...NAVICULACEAE | | | | | | | | |
| ....NAVICULA | 6 | 1 | -- | - | -- | - | -- | - |
| ....PINNULARIA | 6 | 1 | -- | - | -- | - | -- | - |
| ...NITZSCHIACEAE | | | | | | | | |
| ....NITZSCHIA | 11 | 2 | -- | - | -- | - | -- | - |
| .CHRYSOPHYCEAE | | | | | | | | |
| ..CHRYSOMONADALES | | | | | | | | |
| ...UNKNOWN 216020102002000 | -- | - | 27 | 12 | -- | - | -- | - |
| CYANOPHYTA (BLUE-GREEN ALGAE) | | | | | | | | |
| .CYANOPHYCEAE | | | | | | | | |
| ..HORMOGONALES | | | | | | | | |
| ...OSCILLATORIACEAE | | | | | | | | |
| ....OSCILLATORIA | -- | - | -- | - | -- | - | -- | - |
| ..CHROOCOCCALES | | | | | | | | |
| ...UNKNOWN 218010101006000 | -- | - | -- | - | -- | - | -- | - |
| ...UNKNOWN 218010101021000 | 230# | 46 | -- | - | -- | - | -- | - |
| PYRRHOPHYTA (FIRE ALGAE) | | | | | | | | |
| .DINOPHYCEAE | | | | | | | | |
| ..PERIDINIALES | | | | | | | | |
| ...PERIDINIACEAE | | | | | | | | |
| ....PERIDINIUM | 11 | 2 | -- | - | -- | - | -- | - |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

09510000 VERDE RIVER BELOW BARTLETT DAM, AZ--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

PHYTOPLANKTON

| DATE | AUG 1,78 | AUG 29,78 | SEP 26,78 |
|---|---|---|---|
| TIME | 1015 | 0845 | 0845 |
| TOTAL CELLS/ML | 38 | 110 | 7500 |
| DIVERSITY: DIVISION | 1.0 | 1.3 | 0.2 |
| .CLASS | 1.0 | 1.3 | 0.2 |
| ..ORDER | 1.2 | 1.8 | 0.2 |
| ...FAMILY | 1.9 | 2.0 | 0.2 |
| ....GENUS | 0.0 | 2.0 | 0.9 |

| ORGANISM | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT |
|---|---|---|---|---|---|---|
| CHLOROPHYTA (GREEN ALGAE) | | | | | | |
| .CHLOROPHYCEAE | | | | | | |
| ..CHLOROCOCCALES | | | | | | |
| ...CHARACIACEAE | | | | | | |
| ....SCHROEDERIA | -- | - | -- | - | -- | - |
| ...OOCYSTACEAE | | | | | | |
| ....ANKISTRODESMUS | -- | - | 4 | 3 | -- | - |
| ....KIRCHNERIELLA | -- | - | -- | - | -- | - |
| ....OOCYSTIS | -- | - | -- | - | -- | - |
| ...SCENEDESMACEAE | | | | | | |
| ....ACTINASTRUM | -- | - | -- | - | -- | - |
| ....CRUCIGENIA | -- | - | -- | - | -- | - |
| ....SCENEDESMUS | -- | - | -- | - | 240 | 3 |
| ..TETRASPORALES | | | | | | |
| ...PALMELLACEAE | | | | | | |
| ....SPHAEROCYSTIS | -- | - | -- | - | -- | - |
| ..VOLVOCALES | | | | | | |
| ...CHLAMYDOMONADACEAE | | | | | | |
| ....CHLAMYDOMONAS | -- | - | 4 | 3 | -- | - |
| ..ZYGNEMATALES | | | | | | |
| ...ZYGNEMATACEAE | | | | | | |
| ....SPIROGYRA | -- | - | -- | - | -- | - |
| CHRYSOPHYTA | | | | | | |
| .BACILLARIOPHYCEAE | | | | | | |
| ..CENTRALES | | | | | | |
| ...COSCINODISCACEAE | | | | | | |
| ....CYCLOTELLA | -- | - | 18# | 17 | 5900# | 79 |
| ....MELOSIRA | -- | - | -- | - | 1300# | 18 |
| ..PENNALES | | | | | | |
| ...ACHNANTHACEAE | | | | | | |
| ....COCCONEIS | 1 | 4 | -- | - | -- | - |
| ...FRAGILARIACEAE | | | | | | |
| ....SYNEDRA | -- | - | -- | - | -- | - |
| ...GOMPHONEMATACEAE | | | | | | |
| ....GOMPHONEMA | 3 | 7 | 21# | 20 | -- | - |
| ...NAVICULACEAE | | | | | | |
| ....NAVICULA | 7# | 18 | 7 | 7 | -- | - |
| ....PINNULARIA | -- | - | -- | - | -- | - |
| ...NITZSCHIACEAE | | | | | | |
| ....NITZSCHIA | 5 | 14 | -- | - | -- | - |
| .CHRYSOPHYCEAE | | | | | | |
| ..CHRYSOMONADALES | | | | | | |
| ...UNKNOWN 2160201020020 00 | -- | - | -- | - | -- | - |
| CYANOPHYTA (BLUE-GREEN ALGAE) | | | | | | |
| .CYANOPHYCEAE | | | | | | |
| ..HORMOGONALES | | | | | | |
| ...OSCILLATORIACEAE | | | | | | |
| ....OSCILLATORIA | 20# | 54 | 53# | 50 | -- | - |
| ..CHROOCOCCALES | | | | | | |
| ...UNKNOWN 2180101010060 00 | 1 | 4 | -- | - | -- | - |
| ...UNKNOWN 2180101010210 00 | -- | - | -- | - | -- | - |
| PYRRHOPHYTA (FIRE ALGAE) | | | | | | |
| .DINOPHYCEAE | | | | | | |
| ..PERIDINIALES | | | | | | |
| ...PERIDINIACEAE | | | | | | |
| ....PERIDINIUM | -- | - | -- | - | -- | - |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

## 09510100 EAST FORK SYCAMORE CREEK NEAR SUNFLOWER, AZ

LOCATION.--Lat 33°56'58", long 111°27'39", in NE¼SE¼ sec. 18, T.7 N., R.9 E., Maricopa County, Hydrologic Unit 15060203, in Tonto National Forest, on left bank 1.7 mi (2.7 km) upstream from confluence with West Fork and 6.0 mi (9.7 km) north of Sunflower.

DRAINAGE AREA.--4.49 $mi^2$ (11.6 $km^2$).

PERIOD OF RECORD.--July 1961 to current year. Low-flow records not equivalent prior to Nov. 10, 1964, owing to undetermined amount of underflow between sites.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 4,140 ft (1,262 m), from topographic map. Prior to Nov. 10, 1964, at site 0.2 mi (0.3 km) downstream at different datum.

REMARKS.--Records good except those for period of no gage-height record, which are poor. No storage or diversion above station.

AVERAGE DISCHARGE.--17 years, 0.667 $ft^3/s$ (0.0189 $m^3/s$), 483 acre-ft/yr (596,000 $m^3/yr$); median of yearly mean discharges, 0.30 $ft^3/s$ (0.0085 $m^3/s$), 220 acre-ft/yr (270,000 $m^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,940 $ft^3/s$ (54.9 $m^3/s$) Sept. 5, 1970, gage height, 9.50 ft (2.896 m), from profile past gage, from rating curve extended above 130 $ft^3/s$ (3.7 $m^3/s$) on basis of slope-area measurements of peak flow; no flow at times each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*), (from rating curve extended above 130 $ft^3/s$ or 3.7 $m^3/s$ as explained above) and peak discharges above base of 20 $ft^3/s$ (0.6 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|
| Jan. 15 | 1530 | 46 | 1.30 | 2.60 | 0.792 |
| Jan. 31 | 1500 | 26 | 0.74 | 2.26 | 0.689 |
| Feb. 11 | 0100 | 35 | 0.99 | 2.44 | 0.744 |
| Mar. 1 or 2 | Unknown | *550 | 15.5 | 6.18 | 1.884 |
| Mar. 5 | Unknown | 140† | 4.0 | 3.5† | 1.07 |

No flow for many days.
† About.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .00 | .00 | .00 | .04 | 6.3 | 140 | 2.3 | .78 | .15 | .04 | .02 | .01 |
| 2 | .00 | .00 | .00 | .03 | 2.4 | 180 | 2.0 | .64 | .15 | .03 | .02 | .01 |
| 3 | .00 | .00 | .00 | .03 | 1.3 | 50 | 1.9 | .60 | .15 | .03 | .02 | .01 |
| 4 | .00 | .00 | .00 | .03 | .91 | 20 | 1.7 | .55 | .14 | .03 | .02 | .01 |
| 5 | .00 | .00 | .00 | .02 | .64 | 40 | 1.7 | .55 | .13 | .03 | .02 | .02 |
| 6 | .01 | .00 | .00 | .02 | .64 | 30 | 1.5 | .51 | .13 | .03 | .02 | .02 |
| 7 | .01 | .00 | .00 | .02 | .60 | 20 | 1.5 | .47 | .13 | .02 | .02 | .01 |
| 8 | .00 | .00 | .00 | .02 | .64 | 15 | 1.5 | .47 | .13 | .02 | .02 | .01 |
| 9 | .00 | .00 | .00 | .01 | .55 | 10 | 1.6 | .47 | .12 | .02 | .02 | .01 |
| 10 | .00 | .00 | .00 | .01 | 3.8 | 8.6 | 1.4 | .47 | .10 | .02 | .02 | .01 |
| 11 | .00 | .00 | .00 | .01 | 20 | 6.5 | 1.3 | .43 | .10 | .02 | .02 | .01 |
| 12 | .00 | .00 | .00 | .01 | 7.5 | 8.6 | 1.1 | .43 | .09 | .02 | .02 | .01 |
| 13 | .00 | .00 | .00 | .01 | 5.5 | 8.2 | 1.0 | .43 | .08 | .02 | .02 | .00 |
| 14 | .00 | .00 | .00 | .01 | 6.1 | 7.1 | 1.0 | .39 | .08 | .02 | .02 | .00 |
| 15 | .00 | .00 | .00 | 10 | 5.0 | 6.1 | .96 | .39 | .07 | .01 | .02 | .00 |
| 16 | .00 | .00 | .00 | 1.9 | 4.3 | 5.2 | .96 | .36 | .07 | .01 | .02 | .00 |
| 17 | .00 | .00 | .00 | 7.4 | 3.6 | 4.6 | .91 | .36 | .07 | .01 | .02 | .00 |
| 18 | .00 | .00 | .00 | 2.6 | 3.0 | 4.3 | .86 | .32 | .06 | .01 | .02 | .00 |
| 19 | .00 | .00 | .00 | .96 | 2.8 | 4.0 | .86 | .32 | .06 | .01 | .02 | .00 |
| 20 | .00 | .00 | .00 | .73 | 3.1 | 3.7 | .78 | .32 | .06 | .01 | .02 | .00 |
| 21 | .00 | .00 | .00 | .43 | 4.0 | 3.4 | .78 | .32 | .06 | .01 | .02 | .00 |
| 22 | .00 | .00 | .00 | .36 | 3.8 | 4.6 | .78 | .24 | .05 | .01 | .02 | .00 |
| 23 | .00 | .00 | .00 | .28 | 3.4 | 3.7 | .78 | .24 | .05 | .01 | .02 | .00 |
| 24 | .00 | .00 | .00 | .20 | 2.7 | 3.4 | .78 | .24 | .05 | .01 | .02 | .00 |
| 25 | .00 | .00 | .00 | .15 | 2.1 | 3.0 | .78 | .24 | .05 | .02 | .02 | .00 |
| 26 | .00 | .00 | .00 | .14 | 1.7 | 2.8 | .78 | .24 | .04 | .02 | .02 | .00 |
| 27 | .00 | .00 | .00 | .13 | 1.9 | 2.6 | .68 | .24 | .04 | .02 | .02 | .00 |
| 28 | .00 | .00 | .01 | .12 | 50 | 2.4 | .68 | .20 | .05 | .02 | .01 | .00 |
| 29 | .00 | .00 | .02 | .10 | --- | 2.2 | .68 | .20 | .04 | .02 | .01 | .00 |
| 30 | .00 | .00 | .03 | .23 | --- | 2.2 | .68 | .16 | .04 | .02 | .01 | .00 |
| 31 | .00 | --- | .04 | 16 | --- | 2.0 | --- | .15 | --- | .02 | .01 | --- |
| TOTAL | .02 | .00 | .10 | 42.00 | 148.28 | 604.2 | 34.23 | 11.73 | 2.54 | .59 | .58 | .14 |
| MEAN | .001 | .000 | .003 | 1.35 | 5.30 | 19.5 | 1.14 | .38 | .085 | .019 | .019 | .005 |
| MAX | .01 | .00 | .04 | 16 | 50 | 180 | 2.3 | .78 | .15 | .04 | .02 | .02 |
| MIN | .00 | .00 | .00 | .01 | .55 | 2.0 | .68 | .15 | .04 | .01 | .01 | .00 |
| AC-FT | .04 | .00 | .2 | 83 | 294 | 1200 | 68 | 23 | 5.0 | 1.2 | 1.2 | .3 |

CAL YR 1977 TOTAL 9.99 MEAN .027 MAX 1.3 MIN .00 AC-FT 20
WTR YR 1978 TOTAL 844.41 MEAN 2.31 MAX 180 MIN .00 AC-FT 1670

NOTE.--No gage-height record Feb. 28 to Mar. 9.

## 09510200 SYCAMORE CREEK NEAR FORT MCDOWELL, AZ

LOCATION.--Lat 33°41'39", long 111°32'28", in sec.16, T.4 N., R.8 E. (unsurveyed), Maricopa County, Hydrologic Unit 15060203, in Tonto National Forest, on right bank 0.7 mi (1.1 km) southwest of Sugarloaf Mountain, 9 mi (14 km) northeast of Fort McDowell, 10 mi (16 km) upstream from mouth, and 25 mi (40 km) northeast of Scottsdale.

DRAINAGE AREA.--164 $mi^2$ (425 $km^2$).

PERIOD OF RECORD.--December 1960 to current year. Prior to Oct. 1, 1963, published as "near McDowell."

REVISED RECORDS.--WRD Ariz. 1970: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,759.33 ft (536.244 m) National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1970, at datum 0.16 ft (0.049 m) lower.

REMARKS.--Records poor.

AVERAGE DISCHARGE.--17 years (water years 1962-78), 23.0 $ft^3/s$ (0.651 $m^3/s$), 16,660 acre-ft/yr (20.5 $hm^3/yr$); median of yearly mean discharges, 9.0 $ft^3/s$ (0.25 $m^3/s$), 6,500 acre-ft/yr (8.0 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,200 $ft^3/s$ (685 $m^3/s$) Sept. 5, 1970, gage height, 19.7 ft (6.00 m), from profile past gage, from rating curve extended above 3,600 $ft^3/s$ (102 $m^3/s$) on basis of slope-area measurements at gage heights 15.0 and 19.7 ft (4.57 and 6.00 m); no flow at times in most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*), (result of slope-area measurement) and peak discharges above base of 400 $ft^3/s$ (11 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|
| Jan. 15 | Unknown | 1,600† | 45 | Unknown | |
| Jan. 31 | Unknown | 2,000† | 57 | Unknown | |
| Feb. 11 | Unknown | 2,600† | 74 | Unknown | |
| Mar. 1 or 2 | Unknown | *17,900 | 507 | 16.0 | 4.88 |
| Mar. 5 or 6 | Unknown | 3,500† | 99 | Unknown | |

Minimum daily, 0.01 $ft^3/s$ (<0.001 $m^3/s$) Nov. 27-30.
† About.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .05 | .05 | .02 | .10 | 300 | 5600 | 100 | 40 | 10 | 4.0 | 1.5 | .40 |
| 2 | .05 | .05 | .02 | .10 | 200 | 8300 | 100 | 40 | 10 | 4.0 | 1.2 | .40 |
| 3 | .04 | .05 | .02 | .10 | 100 | 2600 | 80 | 40 | 10 | 3.0 | 3.0 | .40 |
| 4 | .03 | .05 | .02 | .10 | 60 | 800 | 80 | 30 | 10 | 3.0 | 5.7 | .40 |
| 5 | .03 | .05 | .03 | .10 | 40 | 1800 | 80 | 30 | 10 | 3.0 | .50 | .40 |
| 6 | .04 | .05 | .03 | .10 | 30 | 1900 | 80 | 30 | 10 | 3.0 | .60 | .30 |
| 7 | .04 | .03 | .03 | .10 | 30 | 600 | 70 | 30 | 7.0 | 3.0 | 1.0 | .30 |
| 8 | .05 | .03 | .03 | .10 | 30 | 500 | 70 | 30 | 7.0 | 3.0 | .90 | .30 |
| 9 | .07 | .03 | .03 | .10 | 30 | 400 | 70 | 30 | 7.0 | 3.0 | 1.0 | .30 |
| 10 | .07 | .03 | .04 | .10 | 30 | 400 | 70 | 20 | 7.0 | 3.0 | .60 | .30 |
| 11 | .09 | .03 | .04 | .10 | 900 | 400 | 50 | 20 | 7.0 | 3.0 | .60 | .30 |
| 12 | .09 | .04 | .04 | .10 | 500 | 300 | 50 | 20 | 7.0 | 3.0 | .60 | .30 |
| 13 | .09 | .05 | .04 | .10 | 300 | 300 | 50 | 20 | 7.0 | 3.0 | .60 | .30 |
| 14 | .09 | .05 | .04 | .50 | 200 | 300 | 50 | 20 | 7.0 | 2.0 | .50 | .92 |
| 15 | .07 | .05 | .05 | 350 | 200 | 300 | 50 | 20 | 7.0 | 2.0 | .50 | .82 |
| 16 | .09 | .05 | .05 | 50 | 200 | 300 | 40 | 20 | 7.0 | 2.0 | .50 | .77 |
| 17 | .09 | .05 | .07 | 250 | 200 | 300 | 40 | 15 | 7.0 | 2.0 | .60 | .73 |
| 18 | .09 | .05 | .07 | 50 | 150 | 200 | 40 | 15 | 5.0 | 2.0 | .60 | .62 |
| 19 | .10 | .10 | .07 | 30 | 150 | 200 | 40 | 15 | 5.0 | 2.0 | .60 | .54 |
| 20 | .09 | .03 | .09 | 20 | 150 | 200 | 40 | 15 | 5.0 | 2.0 | .60 | .50 |
| 21 | .09 | .03 | .17 | 10 | 150 | 200 | 40 | 15 | 5.0 | 2.0 | .60 | .34 |
| 22 | .09 | .03 | .19 | 5.0 | 150 | 200 | 40 | 15 | 5.0 | 10 | .60 | .35 |
| 23 | .05 | .03 | .21 | 5.0 | 150 | 200 | 40 | 10 | 5.0 | 2.0 | .60 | .34 |
| 24 | .05 | .02 | .23 | 5.0 | 150 | 150 | 40 | 10 | 5.0 | 20 | .60 | .35 |
| 25 | .07 | .02 | .23 | 5.0 | 100 | 150 | 40 | 10 | 5.0 | 2.0 | .60 | .60 |
| 26 | .07 | .02 | .24 | 5.0 | 100 | 150 | 40 | 10 | 4.0 | 15 | .50 | .41 |
| 27 | .07 | .01 | .10 | 5.0 | 100 | 150 | 40 | 10 | 4.0 | 2.0 | .50 | .42 |
| 28 | .05 | .01 | .05 | 5.0 | 2600 | 100 | 40 | 10 | 4.0 | 2.0 | .40 | .36 |
| 29 | .07 | .01 | .06 | 5.0 | --- | 100 | 40 | 10 | 4.0 | 2.0 | .40 | .32 |
| 30 | .05 | .01 | .07 | 10 | --- | 100 | 40 | 10 | 4.0 | 2.0 | .40 | .33 |
| 31 | .07 | --- | .07 | 600 | --- | 100 | --- | 10 | --- | 2.0 | .40 | --- |
| TOTAL | 2.09 | 1.11 | 2.45 | 1411.80 | 7300 | 27300 | 1650 | 620 | 197.0 | 116.0 | 27.30 | 13.12 |
| MEAN | .067 | .037 | .079 | 45.5 | 261 | 881 | 55.0 | 20.0 | 6.57 | 3.74 | .88 | .44 |
| MAX | .10 | .10 | .24 | 600 | 2600 | 8300 | 100 | 40 | 10 | 20 | 5.7 | .92 |
| MIN | .03 | .01 | .02 | .10 | 30 | 100 | 40 | 10 | 4.0 | 2.0 | .40 | .30 |
| AC-FT | 4.1 | 2.2 | 4.9 | 2800 | 14480 | 54150 | 3270 | 1230 | 391 | 230 | 54 | 26 |

CAL YR 1977 TOTAL 1081.47 MEAN 2.96 MAX 561 MIN .01 AC-FT 2150
WTR YR 1978 TOTAL 38640.87 MEAN 106 MAX 8300 MIN .01 AC-FT 76640

NOTE.--Doubtful or no gage-height record Jan. 1 to Sept. 13.

## 09511300 VERDE RIVER NEAR SCOTTSDALE, AZ

LOCATION.--Lat 33°34'52", long 111°40'12", in NE¼ sec.30, T.3 N., R.7 E., Maricopa County, Hydrologic Unit 15060203, on pier near left bank on downstream side of bridge on State Highway 87, in Fort McDowell Indian Reservation, 2.5 mi (4.0 km) upstream from mouth, 3.8 mi (6.1 km) downstream from Fort McDowell, and 16 mi (26 km) northeast of Scottsdale.

DRAINAGE AREA.--6,600 $mi^2$ (17,090 $km^2$), approximately.

PERIOD OF RECORD.--February 1961 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,351.35 ft (411.891 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair. Flow regulated by Bartlett and Horseshoe Reservoirs (see sta 09509500) except during periods of spill or floodflow below Bartlett Dam. About 12,500 acres (50.6 $km^2$) above reservoirs are irrigated by surface water and ground water. Below reservoirs water is diverted for municipal supply of city of Phoenix, and for irrigation of an undetermined acreage in Fort McDowell Indian Reservation. Remainder (except during infrequent period of extreme flooding) is diverted at Granite Reef Dam on Salt River, 6 mi (10 km) downstream, for irrigation in Salt River Valley and for municipal use by the city of Phoenix.

AVERAGE DISCHARGE.--17 years, 557 $ft^3/s$ (15.77 $m^3/s$), 403,500 acre-ft/yr (497 $hm^3/yr$); median of yearly mean discharges, 430 $ft^3/s$ (12.2 $m^3/s$), 312,000 acre-ft/yr (385 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 96,000 $ft^3/s$ (2,719 $m^3/s$) Mar. 2, 1978, on basis of flood routing, gage height, 18.3 ft (5.58 m); no flow Nov. 8-19, 1961, June 4-22, 1970, Mar. 20-22, 1971, Apr. 2-15, 1974, Sept. 18-24, 1976, May 17-June 11, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 96,000 $ft^3/s$ (2,719 $m^3/s$) Mar. 2, on basis of flood routing, gage height, 18.3 ft (5.58 m); minimum daily, 2.4 $ft^3/s$ (0.068 $m^3/s$) Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 38 | 179 | 202 | 190 | 276 | 8000 | 1560 | 686 | 524 | 748 | 707 | 730 |
| 2 | 52 | 251 | 225 | 181 | 149 | 67000 | 1530 | 694 | 634 | 650 | 816 | 633 |
| 3 | 65 | 313 | 229 | 173 | 150 | 79000 | 1510 | 692 | 611 | 545 | 795 | 438 |
| 4 | 64 | 295 | 200 | 172 | 182 | 26000 | 1570 | 634 | 470 | 650 | 886 | 388 |
| 5 | 22 | 313 | 183 | 170 | 234 | 17000 | 1710 | 642 | 531 | 750 | 458 | 315 |
| 6 | 22 | 314 | 182 | 222 | 246 | 20000 | 1790 | 633 | 538 | 750 | 178 | 439 |
| 7 | 23 | 298 | 167 | 228 | 200 | 19000 | 1000 | 600 | 531 | 744 | 137 | 560 |
| 8 | 20 | 263 | 190 | 229 | 185 | 20000 | 700 | 500 | 566 | 753 | 130 | 740 |
| 9 | 18 | 256 | 182 | 224 | 177 | 2000 | 700 | 500 | 650 | 755 | 127 | 518 |
| 10 | 17 | 266 | 192 | 230 | 195 | 500 | 750 | 500 | 596 | 734 | 204 | 242 |
| 11 | 19 | 311 | 185 | 169 | 667 | 500 | 800 | 450 | 581 | 680 | 355 | 150 |
| 12 | 21 | 374 | 161 | 208 | 164 | 500 | 900 | 450 | 573 | 865 | 411 | 102 |
| 13 | 20 | 417 | 207 | 206 | 208 | 400 | 900 | 450 | 566 | 938 | 216 | 67 |
| 14 | 20 | 524 | 203 | 154 | 330 | 300 | 700 | 450 | 400 | 887 | 250 | 58 |
| 15 | 20 | 606 | 257 | 167 | 155 | 1200 | 600 | 450 | 650 | 847 | 355 | 43 |
| 16 | 21 | 496 | 249 | 110 | 147 | 3500 | 550 | 450 | 742 | 774 | 540 | 27 |
| 17 | 18 | 450 | 353 | 285 | 122 | 3200 | 500 | 450 | 715 | 847 | 710 | 19 |
| 18 | 12 | 356 | 485 | 118 | 125 | 3200 | 450 | 454 | 642 | 783 | 791 | 14 |
| 19 | 11 | 229 | 420 | 117 | 95 | 3200 | 800 | 456 | 588 | 777 | 811 | 12 |
| 20 | 16 | 226 | 510 | 140 | 107 | 3000 | 789 | 426 | 675 | 929 | 815 | 11 |
| 21 | 24 | 181 | 614 | 140 | 141 | 3000 | 649 | 419 | 826 | 971 | 815 | 9.2 |
| 22 | 24 | 192 | 604 | 139 | 147 | 3500 | 625 | 402 | 922 | 986 | 639 | 7.7 |
| 23 | 24 | 210 | 507 | 139 | 174 | 8000 | 621 | 350 | 930 | 876 | 682 | 6.4 |
| 24 | 24 | 177 | 421 | 118 | 179 | 6000 | 622 | 300 | 884 | 730 | 708 | 5.3 |
| 25 | 24 | 169 | 334 | 152 | 178 | 2600 | 629 | 250 | 833 | 640 | 786 | 5.0 |
| 26 | 24 | 173 | 483 | 147 | 189 | 1500 | 629 | 250 | 915 | 419 | 673 | 4.3 |
| 27 | 108 | 161 | 592 | 141 | 195 | 2200 | 635 | 250 | 969 | 266 | 542 | 4.0 |
| 28 | 398 | 179 | 635 | 139 | 1660 | 1800 | 651 | 250 | 1000 | 240 | 587 | 3.4 |
| 29 | 310 | 203 | 458 | 139 | --- | 1900 | 674 | 250 | 954 | 423 | 421 | 2.8 |
| 30 | 274 | 196 | 353 | 142 | --- | 2200 | 680 | 250 | 826 | 627 | 545 | 2.4 |
| 31 | 178 | --- | 275 | 196 | --- | 2500 | --- | 400 | --- | 681 | 696 | --- |
| TOTAL | 1931 | 8578 | 10258 | 5285 | 6977 | 312700 | 26224 | 13938 | 20842 | 22265 | 16786 | 5556.5 |
| MEAN | 62.3 | 286 | 331 | 170 | 249 | 10090 | 874 | 450 | 695 | 718 | 541 | 185 |
| MAX | 398 | 606 | 635 | 285 | 1660 | 79000 | 1790 | 694 | 1000 | 986 | 886 | 740 |
| MIN | 11 | 161 | 161 | 110 | 95 | 300 | 450 | 250 | 400 | 240 | 127 | 2.4 |
| AC-FT | 3830 | 17010 | 20350 | 10480 | 13840 | 620200 | 52020 | 27650 | 41340 | 44160 | 33300 | 11020 |

CAL YR 1977 TOTAL 68824.86 MEAN 189 MAX 1250 MIN .00 AC-FT 136500
WTR YR 1978 TOTAL 451340.50 MEAN 1237 MAX 79000 MIN 2.4 AC-FT 895200

NOTE.--No gage-height record Feb. 28 to Mar. 21.

## 09512100 INDIAN BEND WASH AT SCOTTSDALE, AZ

LOCATION.--Lat 33°32'19", long 111°54'57", in SW¼SE¼ sec.2, T.2 N., R.4 E., Maricopa County, Hydrologic Unit 15060106, on upstream side of ford on Indian Bend Road, in Scottsdale.

DRAINAGE AREA.--62 $mi^2$ (161 $km^2$) approximately, since October 1975. Prior to October 1975, 139 $mi^2$ (360 $km^2$); reduction caused by cutoff of upper portion of basin by diversion canal and detention dike (also see REMARKS).

PERIOD OF RECORD.--January 1961 to current year. Prior to October 1972 published as "near Scottsdale."

REVISED RECORDS.--WRD Ariz., 1972: 1968, 1970 (revised figures of daily discharge for water years 1968 and 1970 were inadvertently omitted from WSP 2126).

GAGE.--Water-stage recorder. Datum of gage is 1,280.29 ft (390.232 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records poor. Natural flow of wash affected by urbanization and partly regulated by artificial lakes upstream. Upper portion of basin (about 77 $mi^2$ or 199 $km^2$) cut off by diversion canal and detention dike in October 1975. Release of excess flood waters may occasionally pass canal into lower portion of basin.

AVERAGE DISCHARGE.--14 years (water years 1962-75), 2.67 $ft^3/s$ (0.0756 $m^3/s$), 1,930 acre-ft/yr (2.38 $hm^3/yr$), representing flow from 139 $mi^2$ (360 $km^2$); median of yearly mean discharges, 0.30 $ft^3/s$ (0.008 $m^3/s$), 220 acre-ft/yr (0.27 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,000 $ft^3/s$ (595 $m^3/s$) June 22, 1972, gage height, 4.90 ft (1.494 m), from rating curve extended above 7,000 $ft^3/s$ (200 $m^3/s$) on basis of partial discharge measurement at gage height 4.2 ft (1.28 m) and slope-conveyence method at gage height 4.90 ft (1.494 m); no flow for most of time each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*) and peak discharges above base of 20 $ft^3/s$ (0.6 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|
| Jan. 15 | 2200 | 53 | 1.50 | 1.23 | 0.375 |
| Feb. 14 | 1000 | 244 | 6.91 | 1.61 | 0.491 |
| Mar. 2 | 0300 | *3,180 | 90.1 | 3.50 | 1.067 |

No flow for most of year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .00 | .00 | .00 | .00 | .00 | 158 | .00 | .00 | .00 | .00 | .00 | .00 |
| 2 | .00 | .00 | .00 | .00 | .00 | 933 | .00 | .00 | .00 | .00 | .00 | .00 |
| 3 | .00 | .00 | .00 | .00 | .00 | 22 | .00 | .00 | .00 | .00 | .00 | .00 |
| 4 | .00 | .00 | .00 | .00 | .00 | 3.7 | .00 | .00 | .00 | .00 | 2.6 | .00 |
| 5 | .00 | .00 | .00 | .00 | .00 | 12 | .00 | .00 | .00 | .00 | .10 | .00 |
| 6 | .00 | .00 | .00 | .00 | .00 | 64 | .00 | .00 | .00 | .00 | .00 | .00 |
| 7 | .00 | .00 | .00 | .00 | .00 | 41 | .00 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 | 3.4 | .00 | .00 | .00 | .00 | .00 | .00 |
| 9 | .00 | .00 | .00 | .00 | .00 | 1.5 | .00 | .00 | .00 | .00 | .00 | .00 |
| 10 | .00 | .00 | .00 | .40 | .00 | .90 | .00 | .00 | .00 | .00 | .00 | .00 |
| 11 | .00 | .00 | .00 | .50 | .20 | .80 | .00 | .00 | .00 | .00 | .00 | .00 |
| 12 | .00 | .00 | .00 | .00 | .00 | 92 | .00 | .00 | .00 | .00 | .00 | .00 |
| 13 | .00 | .00 | .00 | .00 | .50 | 38 | .00 | .00 | .00 | .00 | .00 | .00 |
| 14 | .00 | .00 | .00 | .10 | 81 | 6.2 | .00 | .00 | .00 | .00 | .00 | .00 |
| 15 | .00 | .00 | .00 | 8.0 | 21 | 6.2 | .00 | .00 | .00 | .00 | .00 | .00 |
| 16 | .00 | .00 | .00 | 25 | 2.9 | 4.7 | .00 | .00 | .00 | .00 | .00 | .00 |
| 17 | .00 | .00 | .00 | 4.7 | 1.6 | 3.2 | .00 | .00 | .00 | .00 | .00 | .00 |
| 18 | .00 | .00 | .00 | 4.2 | 1.5 | 3.2 | .00 | .00 | .00 | .00 | .00 | .00 |
| 19 | .00 | .00 | .00 | 1.3 | 1.0 | 3.2 | .00 | .00 | .00 | .00 | .00 | .00 |
| 20 | .00 | .00 | .00 | .90 | 1.0 | 2.9 | .00 | .00 | .00 | .00 | .00 | .00 |
| 21 | .00 | .00 | .00 | .70 | .80 | 1.6 | .00 | .00 | .00 | .00 | .00 | .00 |
| 22 | .00 | .00 | .00 | .50 | .40 | .90 | .00 | .00 | .00 | .00 | .00 | .00 |
| 23 | .00 | .00 | .00 | .00 | .00 | .90 | .00 | .00 | .00 | .00 | .00 | .00 |
| 24 | .00 | .00 | .00 | .00 | .30 | .90 | .00 | .00 | .00 | .00 | .00 | .00 |
| 25 | .00 | .00 | .00 | .00 | .00 | .90 | .00 | .00 | .00 | 2.3 | .00 | .00 |
| 26 | .00 | .00 | .00 | .00 | .00 | .60 | .00 | .00 | .00 | .60 | .00 | .00 |
| 27 | .00 | .00 | .00 | .00 | .00 | .40 | .00 | .00 | .00 | .00 | .00 | .00 |
| 28 | .00 | .00 | .00 | .00 | 52 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 29 | .00 | .00 | .00 | .00 | --- | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 30 | .00 | .00 | .00 | .00 | --- | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 31 | .00 | --- | .00 | .10 | --- | .00 | --- | .00 | --- | .00 | .00 | --- |
| TOTAL | .00 | .00 | .00 | 46.40 | 164.20 | 1406.10 | .00 | .00 | .00 | 2.90 | 2.70 | .00 |
| MEAN | .000 | .000 | .000 | 1.50 | 5.86 | 45.4 | .000 | .000 | .000 | .094 | .087 | .000 |
| MAX | .00 | .00 | .00 | 25 | 81 | 933 | .00 | .00 | .00 | 2.3 | 2.6 | .00 |
| MIN | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| AC-FT | .00 | .00 | .00 | 92 | 326 | 2790 | .00 | .00 | .00 | 5.8 | 5.4 | .00 |

CAL YR 1977 TOTAL 0.00 MEAN .000 MAX .00 MIN .00 AC-FT .00
WTR YR 1978 TOTAL 1622.30 MEAN 4.44 MAX 933 MIN .00 AC-FT 3220

## 09512200 SALT RIVER TRIBUTARY IN SOUTH MOUNTAIN PARK, AT PHOENIX, AZ

LOCATION.--Lat 33°20'49", long 112°05'03", in NE¼NE¼ sec.18, T.1 S., R.3 E., Maricopa County, Hydrologic Unit 15060106, in South Mountain Park, on left bank 6.5 mi (10.5 km) south of Phoenix main post office.

DRAINAGE AREA.--1.75 $mi^2$ (4.53 $km^2$).

PERIOD OF RECORD.--January 1961 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,405.20 ft (428.305 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records poor. No storage or diversion above station.

AVERAGE DISCHARGE.--17 years, 0.010 $ft^3/s$ (0.0003 $m^3/s$), 7.2 acre-ft/yr (8,880 $m^3/yr$); median of yearly mean discharges, 0.003 $ft^3/s$ (0.0001 $m^3/s$), 2 acre-ft/yr (2,500 $m^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 670 $ft^3/s$ (19.0 $m^3/s$) Sept. 4, 1965, gage height, 9.70 ft (2.957 m), from floodmarks, from rating curve extended above 31 $ft^3/s$ (0.88 $m^3/s$) on basis of measurements of peak flow through culvert at gage heights 5.80, 9.09, and 9.52 ft (1.768, 2.771, and 2.902 m); no flow for most of time each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*) and peak discharges above base of 20 $ft^3/s$ (0.6 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|
| Dec. 29 | 0045 | *86 | 2.44 | 4.29 | 1.308 |
| Jan. 19 | 1915 | 21 | 0.59 | 2.74 | 0.835 |

No flow for most of year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 2 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 3 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 4 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 5 | .00 | .00 | .00 | .00 | .00 | .20 | .00 | .00 | .00 | .00 | .00 | .00 |
| 6 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 7 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 9 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 10 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 11 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 12 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 13 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 14 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 15 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 16 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 17 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 18 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 19 | .00 | .00 | .00 | .30 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 20 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 21 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 22 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 23 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 24 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 25 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 26 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 27 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 28 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 29 | .00 | .00 | 1.0 | .00 | --- | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 30 | .00 | .00 | .00 | .00 | --- | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 31 | .00 | --- | .00 | .00 | --- | .00 | --- | .00 | --- | .00 | .00 | --- |
| TOTAL | .00 | .00 | 1.00 | .30 | .00 | .20 | .00 | .00 | .00 | .00 | .00 | .00 |
| MEAN | .000 | .000 | .032 | .010 | .000 | .006 | .000 | .000 | .000 | .000 | .000 | .000 |
| MAX | .00 | .00 | 1.0 | .30 | .00 | .20 | .00 | .00 | .00 | .00 | .00 | .00 |
| MIN | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| AC-FT | .00 | .00 | 2.0 | .6 | .00 | .4 | .00 | .00 | .00 | .00 | .00 | .00 |

CAL YR 1977 TOTAL 1.00 MEAN .003 MAX 1.0 MIN .00 AC-FT 2.0
WTR YR 1978 TOTAL 1.50 MEAN .004 MAX 1.0 MIN .00 AC-FT 3.0

## 09512400 CAVE CREEK AT PHOENIX, AZ

LOCATION.--Lat 33°34'56", long 112°06'43", in SW¼ sec.24, T.3 N., R.2 E., Maricopa County, Hydrologic Unit 15060106, on downstream side of bridge at Peoria Avenue in Phoenix, 0.7 mi (1.1 km) upstream from Arizona Canal.

DRAINAGE AREA.--252 $mi^2$ (653 $km^2$).

PERIOD OF RECORD.--October 1957 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,236.37 ft (376.846 m) National Geodetic Vertical Datum of 1929 (from Salt River Valley Water Users' Association temporary bench mark). Prior to July 31, 1974, at site 60 ft (18 m) upstream at datum 6.93 ft (2.112 m) higher.

REMARKS.--Records fair. Peak flow regulated from 161 $mi^2$ (417 $km^2$) by Cave Creek Dam 12 mi (19 km) upstream. Flow probably affected by urbanization.

AVERAGE DISCHARGE.--21 years, 3.79 $ft^3/s$ (0.107 $m^3/s$), 2,750 acre-ft/yr (3.39 $hm^3/yr$); median of yearly mean discharges, 1.0 $ft^3/s$ (0.028 $m^3/s$), 720 acre-ft/yr (0.89 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,080 $ft^3/s$ (116 $m^3/s$)—including 345 $ft^3/s$ (9.77 $m^3/s$) released from Cave Creek Dam—Dec. 19, 1967, gage height, 11.23 ft (3.423 m), present datum; no flow for most of time each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,090 $ft^3/s$ (59.2 $m^3/s$) Mar. 2, gage height, 7.36 ft (2.243 m); no flow for most of year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .00 | .00 | .00 | .00 | .00 | 494 | .00 | .00 | .00 | .00 | .00 | .00 |
| 2 | .00 | .00 | .00 | .00 | .00 | 1620 | .00 | .00 | .00 | .00 | .00 | .00 |
| 3 | .00 | .00 | .00 | .00 | .00 | 1540 | .00 | .00 | .00 | .00 | .00 | .00 |
| 4 | .00 | .00 | .00 | .00 | .00 | 1150 | .00 | .00 | .00 | .00 | .00 | .00 |
| 5 | .00 | .00 | .00 | .00 | .00 | 1110 | .00 | .00 | .00 | .00 | .00 | .00 |
| 6 | .00 | .00 | .00 | .00 | .00 | 820 | .00 | .00 | .00 | .00 | .00 | .00 |
| 7 | .00 | .00 | .00 | .00 | .00 | 400 | .00 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 | 300 | .00 | .00 | .00 | .00 | .00 | .00 |
| 9 | .00 | .00 | .00 | .00 | .00 | 270 | .00 | .00 | .00 | .00 | .00 | .00 |
| 10 | .00 | .00 | .00 | .00 | .00 | 229 | .00 | .00 | .00 | .00 | .00 | .00 |
| 11 | .00 | .00 | .00 | .06 | 34 | 115 | .00 | .00 | .00 | .00 | .00 | .00 |
| 12 | .00 | .00 | .00 | .00 | 188 | 70 | .00 | .00 | .00 | .00 | .00 | .00 |
| 13 | .00 | .00 | .00 | .00 | 181 | 50 | .00 | .00 | .00 | .00 | .00 | .00 |
| 14 | .00 | .00 | .00 | .00 | 204 | 20 | .00 | .00 | .00 | .00 | .00 | .00 |
| 15 | .00 | .00 | .00 | 2.4 | 156 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 16 | .00 | .00 | .00 | .25 | 93 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 17 | .00 | .00 | .00 | .10 | 1.6 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 18 | .00 | .00 | .00 | 78 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 19 | .00 | .00 | .00 | 39 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 20 | .00 | .00 | .00 | .01 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 21 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 22 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 23 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 24 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 25 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 26 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 27 | .00 | .00 | .00 | .00 | 2.8 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 28 | .00 | .00 | .00 | .00 | 57 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 29 | .00 | .00 | .00 | .00 | --- | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 30 | .00 | .00 | .00 | .00 | --- | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 31 | .00 | --- | .00 | .00 | --- | .00 | --- | .00 | --- | .00 | .00 | --- |
| TOTAL | .00 | .00 | .00 | 119.82 | 917.40 | 8188.00 | .00 | .00 | .00 | .00 | .00 | .00 |
| MEAN | .000 | .000 | .000 | 3.87 | 32.8 | 264 | .000 | .000 | .000 | .000 | .000 | .000 |
| MAX | .00 | .00 | .00 | 78 | 204 | 1620 | .00 | .00 | .00 | .00 | .00 | .00 |
| MIN | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| AC-FT | .00 | .00 | .00 | 238 | 1820 | 16240 | .00 | .00 | .00 | .00 | .00 | .00 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1977 | TOTAL | 0.00 | MEAN | .000 | MAX | .00 | MIN | .00 | AC-FT 0 |
| WTR YR 1978 | TOTAL | 9225.22 | MEAN | 25.3 | MAX | 1620 | MIN | .00 | AC-FT 18300 |

## 09512500 AGUA FRIA RIVER NEAR MAYER, AZ

LOCATION.--Lat 34°18'55", long 112°03'48", in NW¼SE¼ sec.20, T.11 N., R.3 E., Yavapai County, Hydrologic Unit 15070102, on left bank at Sycamore damsite, 700 ft (210 m) downstream from Big Bug Creek and 12 mi (19 km) southeast of Mayer.

DRAINAGE AREA.--588 $mi^2$ (1,523 $km^2$).

PERIOD OF RECORD.--January 1940 to current year.

GAGE.--Water-stage recorder. Datum of gage is 3,434 ft (1,046.7 m), levels by Maricopa County Municipal Water Conservation District No. 1.

REMARKS.--Records fair. Diversions above station for mining and irrigation of about 600 acres (2.4 $km^2$). Perry Canal, which heads 300 ft (90 m) above the gage, diverted no water during the year.

AVERAGE DISCHARGE.--38 years, 17.1 $ft^3/s$ (0.484 $m^3/s$), 12,390 acre-ft/yr (15.3 $hm^3/yr$); median of yearly mean discharges, 12 $ft^3/s$ (0.34 $m^3/s$), 8,700 acre-ft/yr (11 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,800 $ft^3/s$ (561 $m^3/s$) Sept. 5, 1970, gage height, 14.90 ft (4.542 m), from rating curve extended above 1,600 $ft^3/s$ (45 $m^3/s$) on basis of slope-area measurement of peak flow; negligible flow at times during the summer months in most years when entire flow was diverted to Perry Canal above station and flow past gage was seepage only.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*) and peak discharges above base of 2,300 $ft^3/s$ (65 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) | Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Feb. 11 | 0030 | 4,740 | 134 | 7.42 | 2.262 | Mar. 5 | 1400 | 4,160 | 118 | 7.01 | 2.137 |
| Mar. 1 | 0900 | *9,900 | 280 | 10.45 | 3.185 | | | | | | |

Minimum daily, 0.30 $ft^3/s$ (0.008 $m^3/s$), Sept. 4-13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .70 | .70 | .80 | .80 | 49 | 4260 | 8.3 | 3.3 | 1.7 | .70 | 1.6 | .70 |
| 2 | .70 | .60 | .90 | .80 | 9.3 | 2710 | 11 | 3.6 | 1.5 | .70 | 110 | .40 |
| 3 | .70 | .50 | .90 | .80 | 6.3 | 1910 | 9.3 | 3.0 | 1.5 | .70 | 170 | .40 |
| 4 | .70 | .60 | .90 | .80 | 5.0 | 140 | 8.8 | 3.0 | 1.4 | .50 | 4.0 | .30 |
| 5 | .70 | .50 | 1.1 | .70 | 4.6 | 1100 | 8.3 | 3.3 | 1.2 | .50 | 1.5 | .30 |
| 6 | 25 | .60 | 1.4 | .70 | 4.6 | 350 | 6.8 | 3.0 | 1.2 | .50 | .70 | .30 |
| 7 | 1.3 | .50 | 1.4 | .70 | 5.9 | 175 | 6.3 | 3.3 | 1.1 | .50 | .70 | .30 |
| 8 | .70 | .50 | 1.5 | .60 | 5.4 | 150 | 10 | 3.3 | 1.0 | .60 | .70 | .30 |
| 9 | .60 | .50 | 1.4 | .40 | 4.6 | 125 | 12 | 3.0 | .90 | .60 | 4.0 | .30 |
| 10 | .60 | .50 | 1.2 | 2.5 | 190 | 100 | 8.8 | 2.5 | .80 | .90 | 65 | .30 |
| 11 | .60 | .50 | 1.1 | 1.7 | 1120 | 80 | 8.3 | 3.0 | .80 | .70 | 100 | .30 |
| 12 | .50 | .50 | 1.1 | 1.7 | 109 | 70 | 10 | 3.3 | .80 | .70 | 110 | .30 |
| 13 | .50 | .50 | 1.0 | 1.5 | 67 | 50 | 10 | 2.7 | .80 | .70 | 4.0 | .30 |
| 14 | .50 | .40 | 1.1 | 1.4 | 392 | 40 | 8.8 | 2.5 | .90 | .70 | 1.5 | .40 |
| 15 | .50 | .40 | 1.0 | 2.1 | 150 | 35 | 7.8 | 2.5 | .90 | .70 | .70 | .50 |
| 16 | .50 | .40 | 1.0 | 5.8 | 95 | 30 | 8.3 | 2.5 | 1.0 | .70 | .70 | .40 |
| 17 | .50 | .40 | 1.0 | 28 | 60 | 20 | 8.3 | 2.3 | 1.0 | 1.2 | .60 | .40 |
| 18 | .50 | .40 | 1.0 | 20 | 48 | 17 | 7.3 | 2.1 | 1.0 | .60 | .50 | .40 |
| 19 | .50 | .50 | 1.0 | 10 | 42 | 14 | 6.3 | 2.1 | 1.0 | .50 | .40 | .40 |
| 20 | .60 | .40 | 1.0 | 8.3 | 42 | 13 | 5.8 | 2.1 | 1.2 | .50 | .40 | .40 |
| 21 | .60 | .40 | 1.0 | 17 | 42 | 11 | 5.4 | 2.1 | 1.1 | .50 | .40 | .40 |
| 22 | .60 | .40 | .90 | 9.3 | 42 | 35 | 5.0 | 2.1 | 1.1 | .70 | .40 | .40 |
| 23 | .60 | .50 | .90 | 6.8 | 30 | 44 | 4.2 | 2.1 | 1.2 | 5.6 | .40 | .40 |
| 24 | .70 | .60 | .70 | 5.2 | 23 | 26 | 3.9 | 2.1 | 1.0 | 1.2 | .40 | .40 |
| 25 | .70 | .70 | .70 | 3.9 | 13 | 17 | 3.6 | 2.1 | 1.0 | .80 | .40 | .40 |
| 26 | .70 | .70 | .60 | 3.6 | 11 | 13 | 3.3 | 2.1 | 1.0 | .90 | .40 | .40 |
| 27 | .70 | .70 | .60 | 3.3 | 10 | 10 | 3.3 | 2.1 | .80 | 5.3 | .40 | .40 |
| 28 | .80 | .80 | .90 | 2.7 | 484 | 7.8 | 3.3 | 2.1 | .90 | .90 | .40 | .40 |
| 29 | .90 | .80 | .80 | 2.5 | --- | 7.3 | 3.0 | 2.1 | .90 | .70 | .40 | .40 |
| 30 | .90 | .80 | .80 | 2.7 | --- | 6.3 | 3.0 | 2.1 | .90 | .70 | .40 | .40 |
| 31 | .80 | --- | .70 | 10 | --- | 6.3 | --- | 1.9 | --- | .90 | .40 | --- |
| TOTAL | 44.90 | 16.30 | 30.40 | 156.30 | 3064.7 | 11572.7 | 208.5 | 79.3 | 31.60 | 31.40 | 581.40 | 11.40 |
| MEAN | 1.45 | .54 | .98 | 5.04 | 109 | 373 | 6.95 | 2.56 | 1.05 | 1.01 | 18.8 | .38 |
| MAX | 25 | .80 | 1.5 | 28 | 1120 | 4260 | 12 | 3.6 | 1.7 | 5.6 | 170 | .70 |
| MIN | .50 | .40 | .60 | .40 | 4.6 | 6.3 | 3.0 | 1.9 | .80 | .50 | .40 | .30 |
| AC-FT | 89 | 32 | 60 | 310 | 6080 | 22950 | 414 | 157 | 63 | 62 | 1150 | 23 |

CAL YR 1977 TOTAL 1647.80 MEAN 4.51 MAX 530 MIN .40 AC-FT 3270
WTR YR 1978 TOTAL 15828.90 MEAN 43.4 MAX 4260 MIN .30 AC-FT 31400

## 09512800 AGUA FRIA RIVER NEAR ROCK SPRINGS, AZ

LOCATION.--Lat 34°00'56", long 112°10'02", in NW¼NW¼ sec.28, T.8 N., R.2 E., Yavapai County, Hydrologic Unit 15070102, on right bank 2.5 mi (4.0 km) southwest of Rock Springs and 10 mi (16 km) upstream from Lake Pleasant. Prior to Oct. 1, 1974, at site 600 ft (180 m) upstream.

DRAINAGE AREA.--1,130 $mi^2$ (2,930 $km^2$), approximately.

PERIOD OF RECORD.--January 1970 to current year (monthly discharge only, October 1973 to September 1974). Low-flow records not equivalent prior to Oct. 1, 1974, due to spring flow in streambed between sites in use.

GAGE.--Water-stage recorder. Altitude of gage is 1,800 ft (549 m), from topographic map. Prior to Oct. 1, 1974, at site 600 ft (180 m) upstream at datum 10.00 ft (3.048 m) higher (now used as supplementary gage).

REMARKS.--Records poor.

AVERAGE DISCHARGE.--8 years, 62.7 $ft^3/s$ (1.78 $m^3/s$), 45,430 acre-ft/yr (56.0 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 40,100 $ft^3/s$ (1,140 $m^3/s$) Sept. 5, 1970, gage height, 20.62 ft (6.285 m), site and datum then in use; 25.3 ft (7.71 m), present site and datum, from profile past gage; no flow at times each year prior to October 1974; since October 1974, no flow May 27 to July 12, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*) and peak discharges above base of 1,800 $ft^3/s$ (51 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|
| Jan. 17 | Unknown | 3,200 | 90.6 | a11.20 | 3.414 |
| Feb. 11 | 0530 | 6,590 | 187 | 13.67 | 4.167 |
| Mar. 2 | 0700 | *39,500 | 1,120 | 24.27 | 7.397 |

Minimum daily, 0.10 $ft^3/s$ (0.003 $m^3/s$) Oct. 17-22, Nov. 10-12, and Nov. 14 to Jan. 8.
a From outside high-water mark.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .58 | .51 | .10 | .10 | 76 | 11500 | 110 | 35 | 3.1 | 1.2 | 1.9 | .47 |
| 2 | .42 | .57 | .10 | .10 | 15 | 16600 | 120 | 35 | 3.1 | 1.1 | 50 | .42 |
| 3 | .36 | .57 | .10 | .10 | 2.5 | 11500 | 120 | 35 | 2.8 | 1.1 | 110 | .42 |
| 4 | .33 | .73 | .10 | .10 | .30 | 2900 | 110 | 30 | 2.5 | 1.1 | 38 | .42 |
| 5 | .28 | 1.0 | .10 | .10 | .15 | 4000 | 100 | 30 | 2.8 | 1.1 | 6.3 | .47 |
| 6 | .39 | 1.3 | .10 | .10 | .47 | 2800 | 95 | 30 | 2.8 | 1.1 | 3.1 | .47 |
| 7 | 14 | 1.5 | .10 | .10 | 5.6 | 1700 | 85 | 25 | 2.5 | .98 | 2.5 | .47 |
| 8 | 3.1 | 2.0 | .10 | .10 | 6.6 | 1200 | 95 | 25 | 2.3 | .85 | 1.7 | .47 |
| 9 | .58 | 1.1 | .10 | 1.0 | 4.7 | 900 | 120 | 25 | 2.1 | .85 | 1.5 | .47 |
| 10 | .28 | .10 | .10 | 12 | 338 | 800 | 95 | 20 | 1.9 | .85 | 1.1 | .52 |
| 11 | .20 | .10 | .10 | 11 | 3130 | 800 | 85 | 20 | 1.7 | .98 | 33 | .58 |
| 12 | .17 | .10 | .10 | 10 | 424 | 1000 | 85 | 20 | 1.9 | .74 | 94 | .85 |
| 13 | .15 | .11 | .10 | 15 | 247 | 1000 | 75 | 15 | 1.9 | .66 | 57 | .66 |
| 14 | .14 | .10 | .10 | 10 | 947 | 800 | 65 | 15 | 1.8 | .66 | 11 | .58 |
| 15 | .11 | .10 | .10 | 312 | 484 | 400 | 70 | 15 | 1.7 | .58 | 3.7 | .73 |
| 16 | .11 | .10 | .10 | 1200 | 198 | 390 | 65 | 10 | 1.7 | .66 | 1.9 | .73 |
| 17 | .10 | .10 | .10 | 2400 | 136 | 330 | 60 | 9.0 | 1.8 | .58 | 1.2 | .73 |
| 18 | .10 | .10 | .10 | 1000 | 108 | 280 | 60 | 8.0 | 1.7 | .58 | .98 | .73 |
| 19 | .10 | .10 | .10 | 200 | 75 | 240 | 55 | 7.0 | 1.8 | .52 | .98 | .73 |
| 20 | .10 | .10 | .10 | 150 | 57 | 200 | 55 | 5.9 | 1.4 | .47 | .85 | .66 |
| 21 | .10 | .10 | .10 | 200 | 57 | 190 | 55 | 5.3 | 1.6 | .52 | .73 | .58 |
| 22 | .10 | .10 | .10 | 140 | 72 | 260 | 50 | 5.0 | 1.9 | .52 | .66 | .58 |
| 23 | .12 | .10 | .10 | 50 | 102 | 230 | 50 | 5.0 | 1.6 | 1.1 | .66 | .58 |
| 24 | .14 | .10 | .10 | 30 | 107 | 180 | 50 | 4.4 | 1.5 | 4.7 | 1.2 | .66 |
| 25 | .18 | .10 | .10 | 23 | 85 | 150 | 45 | 4.4 | 1.4 | 3.9 | .98 | .58 |
| 26 | .20 | .10 | .10 | 19 | 58 | 130 | 45 | 4.4 | 1.5 | 2.5 | .85 | .58 |
| 27 | .25 | .10 | .10 | 15 | 42 | 120 | 45 | 4.2 | 1.4 | 2.3 | .85 | .52 |
| 28 | .31 | .10 | .10 | 11 | 1090 | 110 | 40 | 3.9 | 1.4 | 1.5 | .85 | .58 |
| 29 | .34 | .10 | .10 | 8.1 | --- | 100 | 40 | 3.9 | 1.4 | 1.1 | .58 | .52 |
| 30 | .37 | .10 | .10 | 6.6 | --- | 85 | 40 | 3.7 | 1.4 | .85 | .47 | .52 |
| 31 | .46 | --- | .10 | 59 | --- | 80 | --- | 3.4 | --- | .73 | .47 | --- |
| TOTAL | 24.17 | 11.39 | 3.10 | 5883.50 | 7868.32 | 60975 | 2185 | 462.5 | 58.4 | 36.38 | 429.01 | 17.28 |
| MEAN | .78 | .38 | .10 | 190 | 281 | 1967 | 72.8 | 14.9 | 1.95 | 1.17 | 13.8 | .58 |
| MAX | 14 | 2.0 | .10 | 2400 | 3130 | 16600 | 120 | 35 | 3.1 | 4.7 | 110 | .85 |
| MIN | .10 | .10 | .10 | .10 | .15 | 80 | 40 | 3.4 | 1.4 | .47 | .47 | .42 |
| AC-FT | 48 | 23 | 6.1 | 11670 | 15610 | 120900 | 4330 | 917 | 116 | 72 | 851 | 34 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1977 | TOTAL | 923.51 | MEAN | 2.53 | MAX | 200 | MIN | .00 | AC-FT | 1830 |
| WTR YR 1978 | TOTAL | 77954.05 | MEAN | 214 | MAX | 16600 | MIN | .10 | AC-FT | 154600 |

NOTE.--No gage-height record Oct. 1 to Jan. 24 and Mar. 2 to May 19.

## 09513000 AGUA FRIA RIVER AT WADDELL DAM, AZ

LOCATION.--Lat 33°51'20", long 112°15'58", in SW¼ sec.16, T.6 N., R.1 E., Maricopa County, Hydrologic Unit 15070102, at left upstream end of Waddell Dam, and 22 mi (35 km) northwest of Glendale.

DRAINAGE AREA.--1,459 $mi^2$ (3,779 $km^2$).

PERIOD OF RECORD.--November 1910 to September 1914 (gage heights only), October 1914 to September 1919, October 1919 to September 1924 (gage heights only), October 1933 to current year (monthly discharge only). Published as "near Glendale" prior to 1920, and as "at Lake Pleasant Dam" 1920 to September 1962.

REVISED RECORDS.--WSP 1213: 1915-16, 1918-19. WSP 1343: Drainage area. WSP 1513: 1956.

GAGE.--Nonrecording gage on Lake Pleasant read once daily. Datum of gage is 1,431.2 ft (436.23 m) National Geodetic Vertical Datum of 1929. Prior to Sept. 30, 1924, nonrecording gage or water-stage recorder at several sites in the vicinity of diversion dam 1.5 mi (2.4 km) downstream from Waddell Dam, at different datum.

REMARKS.--Records fair. Figures given herein represent flow into Lake Pleasant. Inflow computed on basis of three factors as follows: 1. Change in contents of Lake Pleasant and in contents of small reservoir behind diversion dam 1.5 mi (2.4 km) downstream from Lake Pleasant. 2. (a) Release from Lake Pleasant, computed from twice-daily readings by Clausen-Pierce weir rule in Beardsley Canal, checked by current-meter measurements by U.S. Geological Survey. (b) Spill from Lake Pleasant, measured over diversion dam based on staff-gage readings. See tables of diversions and spill below. 3. Effect of rainfall and evaporation on lake; evaporation assumed as 0.85 of that measured once daily in 3-ft-square (0.9-m-square) land pan buried 1½ ft (½ m) in ground near left end of Waddell Dam. Effect of bank storage and bank release in Lake Pleasant is not taken into account. For months when inflow to lake is small and other factors relatively large, discordant figures of runoff may appear. Such discrepancies that may be attributed to inaccuracies in the capacity table, or to the fact that bank storage and bank release are not taken into account, result in quantities too large for periods of falling stage, but tend to be compensated for by quantites too small for periods of rising stage. Inaccuracies in figures of release and evaporation, which may be within reasonable limits within themselves, may result in disproportionately large inaccuracies in small figures of inflow computed as residuals. Diversions for irrigation above Lake Pleasant of probably not over 1,000 acres (4.0 $km^2$). Spill occurred in 1941, 1966, 1968, and 1978 water years.

COOPERATION.--Records collected and prepared in cooperation with Maricopa County Municipal Water Conservation District No. 1.

AVERAGE DISCHARGE.--50 years (water years 1915-19, 1934-78), 83.0 $ft^3/s$ (2.351 $m^3/s$), 60,130 acre-ft/yr (74.1 $hm^3/yr$); median of yearly mean discharges, 40 $ft^3/s$ (1.13 $m^3/s$), 29,000 acre-ft/yr (36 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 105,000 $ft^3/s$ (2,970 $m^3/s$) Jan. 28, 1916, gage height, 30 ft (9.1 m), same datum as in 1919, from floodmarks, Nov. 27, 1919, gage height, 33 ft (10.1 m), datum then in use, from floodmarks, from rating curve extended above 13,000 $ft^3/s$ (370 $m^3/s$) on basis of velocity-area studies (on basis of comparative gage heights, the flood of Nov. 27, 1919, is believed to have been the greater); no flow during spring and summer of several years.

MONTHLY INFLOW TO LAKE PLEASANT; SPILL AND DIVERSIONS BELOW LAKE PLEASANT, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| Month | Inflow to Lake Pleasant | | Diversions in acre-feet | Spill in acre-feet |
|---|---|---|---|---|
| | Mean (cfs) | Runoff in acre-feet | | |
| October | 2.83 | 174 | 0 | 0 |
| November | 2.62 | 156 | 0 | 0 |
| December | 7.42 | 456 | 0 | 0 |
| CAL YR 1977 | 3.90 | 2,820 | 25,180 | 0 |
| January | 160 | 9,860 | 0 | 0 |
| February | 564 | 31,350 | 0 | 0 |
| March | 2,667 | 164,000 | 2,410 | 45,800 |
| April | 116 | 6,920 | 10,240 | 1,160 |
| May | 31.9 | 1,960 | 4,970 | 0 |
| June | 19.7 | 1,170 | 6,290 | 0 |
| July | 32.4 | 1,990 | 9,660 | 0 |
| August | 35.3 | 2,170 | 10,300 | 0 |
| September | 26.2 | 1,560 | 7,500 | 0 |
| WTR YR 1978 | 305 | 221,800 | 51,370 | 46,960 |

## 09513500 LAKE PLEASANT AT WADDELL DAM, AZ

LOCATION.--Lat 35°51'20", long 112°15'58", in SW¼ sec.16, T.6 N., R.1 E., Maricopa County, Hydrologic Unit 15070102, at left upstream end of Waddell Dam on Agua Fria River.

DRAINAGE AREA.--1,459 $mi^2$ (3,779 $km^2$).

PERIOD OF RECORD.--February 1928 to current year (annual figures only prior to 1939). Prior to October 1963 published as "at Lake Pleasant Dam."

GAGE.--Nonrecording gage read once daily. Datum of gage is 1,431.2 ft (436.23 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Lake is formed by concrete multiple-arch dam; dam completed and storage began in 1927. Capacity, 157,600 acre-ft (194 $hm^3$), of which 86,870 acre-ft (107 $hm^3$) is between gage heights 62 ft (18.9 m)--28 ft (8.5 m) above centerline of outlet works--and 146.0 ft (44.50 m), crest of spillway, and 70,730 acre-ft (87.2 $hm^3$) between 146.0 ft (44.50 m) and 170.0 ft (51.82 m), top of spillway gates. There is no storage below gage height 62 ft (18.9 m) because of accumulated sediment. Water released from reservoir flows down river channel 1.5 mi (2.4 km) to diversion dam where it is diverted for irrigation near Beardsley. Figures given herein represent usable contents in Lake Pleasant (based on 1965 capacity table). Contents of small reservoir formed by diversion dam is not included.

COOPERATION.--Gage-height record furnished by Maricopa County Municipal Water Conservation District No. 1.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 178,500 acre-ft (220 $hm^3$) Apr. 19, 1941, of which 500 acre-ft (616,000 $m^3$) was uncontrolled storage; maximum gage height, 170.28 ft (51.901 m) Feb. 9, 1966; no storage Sept. 5, 1933, July 19 to Aug. 13, 1940.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 160,000 acre-ft (197 $hm^3$) Mar. 23-27, maximum gage height, 170.57 ft (51.990 m) Mar. 23, 24; minimum, 2,890 acre-ft (3.56 $hm^3$) Nov. 16-23, minimum gage height, 76.48 ft (23.311 m) Nov. 20, 21.

Capacity table (gage height, in feet, and usable contents, in acre-feet)

| | | | | | |
|---|---|---|---|---|---|
| 75 | 2,400 | 110 | 25,670 | 160 | 124,500 |
| 80 | 4,160 | 120 | 38,590 | 170 | 157,600 |
| 85 | 6,210 | 130 | 54,440 | 170.6 | 159,800 |
| 90 | 9,640 | 140 | 73,530 | | |
| 100 | 15,660 | 150 | 96,660 | | |

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
INSTANTANEOUS OBSERVATIONS AT 1700

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2920 | 2900 | 2900 | 3270 | 13800 | 68700 | 159000 | 153000 | 147000 | 139000 | 128000 | 117000 |
| 2 | 2920 | 2900 | 2900 | 3270 | 14500 | 119000 | 159000 | 153000 | 147000 | 138000 | 128000 | 117000 |
| 3 | 2920 | 2900 | 2900 | 3270 | 14900 | 152000 | 159000 | 153000 | 147000 | 138000 | 127000 | 116000 |
| 4 | 2920 | 2900 | 2900 | 3280 | 15200 | 152000 | 159000 | 153000 | 147000 | 138000 | 127000 | 116000 |
| 5 | 2920 | 2900 | 2900 | 3280 | 15400 | 153000 | 159000 | 152000 | 146000 | 137000 | 127000 | 116000 |
| 6 | 2920 | 2900 | 2900 | 3290 | 15500 | 152000 | 159000 | 152000 | 146000 | 137000 | 127000 | 115000 |
| 7 | 2930 | 2900 | 2900 | 3290 | 15700 | 153000 | 159000 | 152000 | 146000 | 137000 | 127000 | 115000 |
| 8 | 2930 | 2900 | 2900 | 3290 | 15900 | 154000 | 159000 | 152000 | 146000 | 136000 | 126000 | 114000 |
| 9 | 2930 | 2900 | 2900 | 3290 | 16100 | 155000 | 159000 | 152000 | 145000 | 136000 | 126000 | 114000 |
| 10 | 2930 | 2900 | 2910 | 3380 | 18300 | 156000 | 159000 | 151000 | 145000 | 136000 | 125000 | 114000 |
| 11 | 2930 | 2900 | 2910 | 3730 | 25500 | 157000 | 159000 | 151000 | 145000 | 136000 | 125000 | 113000 |
| 12 | 2930 | 2900 | 2910 | 3780 | 28600 | 157000 | 159000 | 151000 | 144000 | 135000 | 125000 | 113000 |
| 13 | 2920 | 2900 | 2910 | 3800 | 29900 | 157000 | 159000 | 151000 | 144000 | 135000 | 125000 | 113000 |
| 14 | 2920 | 2900 | 2910 | 3800 | 34300 | 157000 | 158000 | 151000 | 144000 | 135000 | 124000 | 112000 |
| 15 | 2920 | 2900 | 2920 | 5140 | 37700 | 158000 | 158000 | 151000 | 144000 | 134000 | 124000 | 112000 |
| 16 | 2920 | 2890 | 2920 | 5830 | 39100 | 158000 | 158000 | 151000 | 143000 | 134000 | 124000 | 112000 |
| 17 | 2910 | 2890 | 2920 | 7880 | 40000 | 159000 | 158000 | 150000 | 143000 | 134000 | 123000 | 112000 |
| 18 | 2900 | 2890 | 2920 | 10700 | 40700 | 159000 | 157000 | 150000 | 143000 | 133000 | 123000 | 112000 |
| 19 | 2900 | 2890 | 2920 | 11200 | 41100 | 159000 | 157000 | 150000 | 143000 | 133000 | 123000 | 111000 |
| 20 | 2900 | 2890 | 2930 | 11600 | 41300 | 159000 | 157000 | 150000 | 142000 | 132000 | 122000 | 111000 |
| 21 | 2900 | 2890 | 2920 | 12000 | 41700 | 159000 | 156000 | 150000 | 142000 | 132000 | 122000 | 111000 |
| 22 | 2900 | 2890 | 2920 | 12300 | 42000 | 159000 | 156000 | 149000 | 142000 | 132000 | 122000 | 110000 |
| 23 | 2900 | 2890 | 2920 | 12400 | 42300 | 160000 | 156000 | 149000 | 141000 | 131000 | 121000 | 110000 |
| 24 | 2900 | 2900 | 2920 | 12500 | 42700 | 160000 | 155000 | 149000 | 141000 | 131000 | 121000 | 110000 |
| 25 | 2900 | 2900 | 2920 | 12600 | 42900 | 160000 | 155000 | 149000 | 141000 | 131000 | 120000 | 110000 |
| 26 | 2900 | 2900 | 2920 | 12700 | 43100 | 160000 | 155000 | 149000 | 140000 | 130000 | 120000 | 110000 |
| 27 | 2900 | 2900 | 2920 | 12700 | 43400 | 160000 | 154000 | 148000 | 140000 | 130000 | 119000 | 110000 |
| 28 | 2900 | 2900 | 2920 | 12800 | 44300 | 159000 | 154000 | 148000 | 140000 | 130000 | 119000 | 110000 |
| 29 | 2910 | 2900 | 2970 | 12800 | --- | 159000 | 154000 | 148000 | 139000 | 129000 | 118000 | 110000 |
| 30 | 2910 | 2900 | 3150 | 12800 | --- | 159000 | 153000 | 148000 | 139000 | 129000 | 118000 | 110000 |
| 31 | 2900 | --- | 3270 | 13100 | --- | 159000 | --- | 148000 | --- | 128000 | 118000 | --- |
| MAX | 2930 | 2900 | 3270 | 13100 | 44300 | 160000 | 159000 | 153000 | 147000 | 139000 | 128000 | 117000 |
| MIN | 2900 | 2890 | 2900 | 3270 | 13800 | 68700 | 153000 | 148000 | 139000 | 128000 | 118000 | 110000 |
| (†) | 76.53 | 76.52 | 77.59 | 96.78 | 123.84 | 170.42 | 168.83 | 167.14 | 164.58 | 161.26 | 157.68 | 154.93 |
| (‡) | -20 | 0 | +370 | +9830 | +31200 | +114700 | -6000 | -5000 | -9000 | -11000 | -10000 | -8000 |

CAL YR 1977 MAX 33000 MIN 2850 ‡ -29430
WTR YR 1978 MAX 160000 MIN 2890 ‡ +107080

† Gage height, in feet, at 1700 on last day of month.
‡ Change in contents, in acre-feet.

## 09513780 NEW RIVER NEAR ROCK SPRINGS, AZ

LOCATION.--Lat 33°58'27", long 112°05'54", in SW¼SW¼ sec.6, T.7 N., R.3 E., Maricopa County, Hydrologic Unit 15070102, on right bank 180 ft (55 m) upstream from road crossing and 6 mi (10 km) southeast of Rock Springs.

DRAINAGE AREA.--67.3 $mi^2$ (174 $km^2$).

PERIOD OF RECORD.--Water years 1962-65 (annual maximums only), October 1965 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 2,310 ft (704 m), from topographic map. Jan. 2, 1964, to Sept. 30, 1965, crest-stage gage, and Oct. 28, 1965, to Nov. 16, 1967, water-stage recorder, at same site at datum 1.00 ft (0.305 m) higher.

REMARKS.--Records poor.

AVERAGE DISCHARGE.--13 years, 10.5 $ft^3/s$ (0.297 $m^3/s$), 7,610 acre-ft/yr (9.38 $hm^3/yr$); median of yearly mean discharges, 4.5 $ft^3/s$ (0.13 $m^3/s$), 3,300 acre-ft/yr (4.1 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,600 $ft^3/s$ (527 $m^3/s$) Sept. 5, 1970, gage height, 13.5 ft (4.11 m), from profile past gage, from rating curve extended above 380 $ft^3/s$ (11 $m^3/s$) on basis of slope-area measurements at gage heights 3.6, 4.73, 7.3, 10.7, and 13.5 ft (1.10, 1.442, 2.23, 3.26, and 4.11 m); no flow for most of time most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*), (from rating curve extended above 380 $ft^3/s$ or 11 $m^3/s$ as explained above) and peak discharges above base of 200 $ft^3/s$ (5.7 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) | Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Jan. 15 | 1800 | 908 | 25.7 | 3.66 | 1.116 | Feb. 14 | 0300 | 668 | 18.9 | 3.34 | 1.018 |
| Jan. 17 | 1300 | 2,250 | 63.7 | 4.90 | 1.494 | Mar. 2 | 0630 | *13,600 | 385 | 9.40 | 2.865 |
| Jan. 31 | 1530 | 304 | 8.61 | 2.67 | 0.814 | Mar. 5 | 1430 | 1,680 | 47.6 | 3.93 | 1.198 |
| Feb. 10 | 2130 | 2,120 | 60.0 | 4.81 | 1.466 | | | | | | |

No flow for most of year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .00 | .00 | .00 | .00 | 68 | 3670 | 18 | 4.7 | 1.3 | .00 | .00 | .00 |
| 2 | .00 | .00 | .00 | .00 | 26 | 5070 | 18 | 7.2 | 1.1 | .00 | .00 | .00 |
| 3 | .00 | .00 | .00 | .00 | 16 | 1730 | 14 | 5.4 | 1.0 | .00 | .00 | .00 |
| 4 | .00 | .00 | .00 | .00 | 10 | 246 | 12 | 4.7 | .88 | .00 | .00 | .00 |
| 5 | .00 | .00 | .00 | .00 | 8.1 | 617 | 12 | 4.0 | .75 | .00 | .00 | .00 |
| 6 | .00 | .00 | .00 | .00 | 8.7 | 568 | 11 | 3.8 | .62 | .00 | .00 | .00 |
| 7 | .00 | .00 | .00 | .00 | 10 | 207 | 11 | 3.8 | .62 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | 11 | 104 | 11 | 3.4 | .62 | .00 | .00 | .00 |
| 9 | .00 | .00 | .00 | .00 | 9.3 | 70 | 11 | 3.2 | .56 | .00 | .00 | .00 |
| 10 | .00 | .00 | .00 | .00 | 298 | 52 | 9.9 | 3.0 | .56 | .00 | .00 | .00 |
| 11 | .00 | .00 | .00 | .00 | 717 | 43 | 9.3 | 2.8 | .51 | .00 | .00 | .00 |
| 12 | .00 | .00 | .00 | .00 | 142 | 524 | 8.7 | 2.8 | .56 | .00 | .00 | .00 |
| 13 | .00 | .00 | .00 | .00 | 155 | 172 | 8.7 | 2.3 | .51 | .00 | .00 | .00 |
| 14 | .00 | .00 | .00 | .00 | 443 | 111 | 8.1 | 2.1 | .51 | .00 | .00 | .00 |
| 15 | .00 | .00 | .00 | 238 | 206 | 79 | 8.1 | 1.9 | .00 | .00 | .00 | .00 |
| 16 | .00 | .00 | .00 | 57 | 132 | 63 | 8.1 | 1.9 | .00 | .00 | .00 | .00 |
| 17 | .00 | .00 | .00 | 530 | 80 | 51 | 8.1 | 1.8 | .00 | .00 | .00 | .00 |
| 18 | .00 | .00 | .00 | 78 | 56 | 44 | 7.2 | 1.7 | .00 | .00 | .00 | .00 |
| 19 | .00 | .00 | .00 | 30 | 38 | 41 | 7.2 | 1.8 | .00 | .00 | .00 | .00 |
| 20 | .00 | .00 | .00 | 25 | 27 | 38 | 6.5 | 1.9 | .00 | .00 | .00 | .00 |
| 21 | .00 | .00 | .00 | 35 | 21 | 32 | 6.5 | 1.8 | .00 | .00 | .00 | .00 |
| 22 | .00 | .00 | .00 | 18 | 17 | 38 | 6.1 | 1.7 | .00 | .00 | .00 | .00 |
| 23 | .00 | .00 | .00 | 11 | 13 | 31 | 5.8 | 1.5 | .00 | .00 | .00 | .00 |
| 24 | .00 | .00 | .00 | 7.1 | 12 | 27 | 5.1 | 1.4 | .00 | .00 | .00 | .00 |
| 25 | .00 | .00 | .00 | 5.0 | 10 | 24 | 5.1 | 1.4 | .00 | .00 | .00 | .00 |
| 26 | .00 | .00 | .00 | 3.5 | 8.7 | 21 | 4.7 | 1.5 | .00 | .00 | .00 | .00 |
| 27 | .00 | .00 | .00 | 2.8 | 8.1 | 19 | 4.7 | 1.7 | .00 | .00 | .00 | .00 |
| 28 | .00 | .00 | .00 | 2.2 | 1920 | 17 | 4.4 | 1.5 | .00 | .00 | .00 | .00 |
| 29 | .00 | .00 | .00 | 1.6 | --- | 15 | 4.0 | 1.4 | .00 | .00 | .00 | .00 |
| 30 | .00 | .00 | .00 | 1.9 | --- | 14 | 4.0 | 1.4 | .00 | .00 | .00 | .00 |
| 31 | .00 | --- | .00 | 105 | --- | 13 | --- | 1.3 | --- | .00 | .00 | --- |
| TOTAL | .00 | .00 | .00 | 1151.10 | 4470.9 | 13751 | 258.3 | 80.8 | 10.10 | .00 | .00 | .00 |
| MEAN | .000 | .000 | .000 | 37.1 | 160 | 444 | 8.61 | 2.61 | .34 | .000 | .000 | .000 |
| MAX | .00 | .00 | .00 | 530 | 1920 | 5070 | 18 | 7.2 | 1.3 | .00 | .00 | .00 |
| MIN | .00 | .00 | .00 | .00 | 8.1 | 13 | 4.0 | 1.3 | .00 | .00 | .00 | .00 |
| AC-FT | .00 | .00 | .00 | 2280 | 8870 | 27280 | 512 | 160 | 20 | .00 | .00 | .00 |

CAL YR 1977 TOTAL 0.50 MEAN .001 MAX .50 MIN .00 AC-FT 1
WTR YR 1978 TOTAL 19722.20 MEAN 54.0 MAX 5070 MIN .00 AC-FT 39120

## 09513800 NEW RIVER AT NEW RIVER, AZ

LOCATION.--Lat 33°54'41", long 112°08'26", in NW¼NE¼ sec.34, T.7 N., R.2 E., Maricopa County, Hydrologic Unit 15070102, near center of downstream side of bridge on east frontage road of Interstate Highway 17, 0.5 mi (0.8 km) southwest of village of New River and 10 mi (16 km) south of Rock Springs.

DRAINAGE AREA.--83.3 $mi^2$ (215.7 $km^2$).

PERIOD OF RECORD.--December 1960 to current year. Prior to October 1965, published as "near Black Canyon."

REVISED RECORDS.--WRD Ariz. 1972: Drainage area (former site).

GAGE.--Water-stage recorder. Datum of gage is 1,984.02 ft (604.729 m) National Geodetic Vertical Datum of 1929. Prior to Feb. 1, 1972, at site 0.3 mi (0.5 km) downstream at datum 10.86 ft (3.310 m) lower (now used as supplementary gage).

REMARKS.--Records fair except those for February and Mar. 15 to May 26, which are poor. No storage or diversion above station.

AVERAGE DISCHARGE.--17 years (water years 1962-78), 9.50 $ft^3/s$ (0.269 $m^3/s$), 6,880 acre-ft/yr (8.48 $hm^3/yr$); median of yearly mean discharges, 3.9 $ft^3/s$ (0.11 $m^3/s$), 2,800 acre-ft/yr (3.5 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,500 $ft^3/s$ (552 $m^3/s$) Sept. 5, 1970, gage height, 9.98 ft (3.042 m), from rating curve extended above 1,300 $ft^3/s$ (37 $m^3/s$) on basis of slope-area measurements at gage heights 5.57, 7.33, 9.12, and 9.98 ft (1.698, 2.234, 2.780, and 3.042 m); no flow for many days each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*), (from rating curve extended above 960 $ft^3/s$ or 27 $m^3/s$ on basis of step-backwater computations and slope-area measurement at gage height 12.34 ft or 3.761 m) and peak discharges above base of 500 $ft^3/s$ (14 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) | Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Jan. 15 | 1930 | 669 | 18.9 | 4.33 | 1.320 | Mar. 2 | 0900 | *18,000 | 510 | a12.34 | 3.761 |
| Jan. 17 | 1400 | 2,600 | 73.6 | 5.52 | 1.682 | Mar. 5 | 1530 | 1,690 | 47.9 | 5.33 | 1.625 |
| Feb. 10 | 2230 | 1,400 | 52.1 | a4.92 | 1.500 | Mar. 12 | 0830 | 1,510 | 42.8 | 5.16 | 1.573 |
| Feb. 13 | 1900 | 1,640 | 46.4 | 5.05 | 1.539 | | | | | | |

No flow for most of year.
a In gage well.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .00 | .00 | .00 | .00 | 43 | 3040 | 35 | 5.0 | .00 | .00 | .00 | .00 |
| 2 | .00 | .00 | .00 | .00 | .00 | 4840 | 34 | 5.0 | .00 | .00 | .00 | .00 |
| 3 | .00 | .00 | .00 | .00 | .00 | 1550 | 24 | 4.0 | .00 | .00 | .00 | .00 |
| 4 | .00 | .00 | .00 | .00 | .00 | 300 | 21 | 4.0 | .00 | .00 | .00 | .00 |
| 5 | .00 | .00 | .00 | .00 | .00 | 660 | 19 | 3.0 | .00 | .00 | .00 | .00 |
| 6 | .00 | .00 | .00 | .00 | 10 | 751 | 16 | 3.0 | .00 | .00 | .00 | .00 |
| 7 | .00 | .00 | .00 | .00 | 5.0 | 350 | 17 | 3.0 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 | 270 | 19 | 3.0 | .00 | .00 | .00 | .00 |
| 9 | .00 | .00 | .00 | .00 | .00 | 226 | 19 | 2.0 | .00 | .00 | .00 | .00 |
| 10 | .00 | .00 | .00 | 26 | 310 | 190 | 18 | 2.0 | .00 | .00 | .00 | .00 |
| 11 | .00 | .00 | .00 | .50 | 970 | 186 | 16 | 2.0 | .00 | .00 | .00 | .00 |
| 12 | .00 | .00 | .00 | .00 | 140 | 436 | 15 | 2.0 | .00 | .00 | .00 | .00 |
| 13 | .00 | .00 | .00 | .00 | 270 | 178 | 13 | 1.0 | .00 | .00 | .00 | .00 |
| 14 | .00 | .00 | .00 | .00 | 510 | 88 | 11 | 1.0 | .00 | .00 | .00 | .00 |
| 15 | .00 | .00 | .00 | 215 | 240 | 73 | 9.8 | 1.0 | .00 | .00 | .00 | .00 |
| 16 | .00 | .00 | .00 | 53 | 158 | 64 | 8.9 | .50 | .00 | .00 | .00 | .00 |
| 17 | .00 | .00 | .00 | 646 | 80 | 60 | 8.0 | .50 | .00 | .00 | .00 | .00 |
| 18 | .00 | .00 | .00 | 71 | 56 | 54 | 7.0 | .50 | .00 | .00 | .00 | .00 |
| 19 | .00 | .00 | .00 | 2.2 | 39 | 49 | 7.0 | .50 | .00 | .00 | .00 | .00 |
| 20 | .00 | .00 | .00 | .00 | 27 | 43 | 7.0 | .50 | .00 | .00 | .00 | .00 |
| 21 | .00 | .00 | .00 | .00 | 23 | 40 | 7.0 | .00 | .00 | .00 | .00 | .00 |
| 22 | .00 | .00 | .00 | .00 | 19 | 46 | 6.0 | .00 | .00 | .00 | .00 | .00 |
| 23 | .00 | .00 | .00 | .00 | 13 | 42 | 6.0 | .00 | .00 | .00 | .00 | .00 |
| 24 | .00 | .00 | .00 | .00 | 12 | 35 | 6.0 | .00 | .00 | .00 | .00 | .00 |
| 25 | .00 | .00 | .00 | .00 | 11 | 32 | 6.0 | .00 | .00 | .00 | .00 | .00 |
| 26 | .00 | .00 | .00 | .00 | 8.9 | 28 | 5.0 | .00 | .00 | .00 | .00 | .00 |
| 27 | .00 | .00 | .00 | .00 | 8.0 | 26 | 5.0 | .00 | .00 | .00 | .00 | .00 |
| 28 | .00 | .00 | .00 | .00 | 1630 | 24 | 5.0 | .00 | .00 | .00 | .00 | .00 |
| 29 | .00 | .00 | 7.7 | .00 | --- | 22 | 4.0 | .00 | .00 | .00 | .00 | .00 |
| 30 | .00 | .00 | 23 | .00 | --- | 20 | 4.0 | .00 | .00 | .00 | .00 | .00 |
| 31 | .00 | --- | .00 | 87 | --- | 20 | --- | .00 | --- | .00 | .00 | --- |
| TOTAL | .00 | .00 | 30.70 | 1100.70 | 4582.90 | 13723 | 378.7 | 43.50 | .00 | .00 | .00 | .00 |
| MEAN | .000 | .000 | .99 | 35.5 | 164 | 443 | 12.6 | 1.40 | .000 | .000 | .000 | .000 |
| MAX | .00 | .00 | 23 | 646 | 1630 | 4840 | 34 | 5.0 | .00 | .00 | .00 | .00 |
| MIN | .00 | .00 | .00 | .00 | .00 | 20 | 4.0 | .00 | .00 | .00 | .00 | .00 |
| AC-FT | .00 | .00 | 61 | 2180 | 9090 | 27220 | 751 | 86 | .00 | .00 | .00 | .00 |

CAL YR 1977 TOTAL 75.30 MEAN .21 MAX 23 MIN .00 AC-FT 149
WTR YR 1978 TOTAL 19859.50 MEAN 54.4 MAX 4840 MIN .00 AC-FT 39390

## 09513835 NEW RIVER AT BELL ROAD, NEAR PEORIA, AZ

LOCATION.--Lat 33°38'18", long 112°14'22", in NE¼NE¼ sec.3, T.3 N., R.1 E., Maricopa County, Hydrologic Unit 15070102, on downstream side of bridge at Bell Road, 1.6 mi (2.6 km) upstream from Skunk Creek, 3.1 mi (5.0 km) north of Peoria, and 9 mi (14 km) upstream from mouth.

DRAINAGE AREA.--187 $mi^2$ (484 $km^2$).

PERIOD OF RECORD.--Water years 1963, 1965-67 (annual maximums only), October 1967 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,190.00 ft (362.712 m) National Geodetic Vertical Datum of 1929 (Arizona State Highway Department bench mark). Oct. 1, 1965, to Sept. 30, 1967, crest-stage gage at present site and at site 50 ft (15 m) upstream, at datum 5.00 ft (1.524 m) higher.

REMARKS.--Records poor.

AVERAGE DISCHARGE.--11 years, 8.98 $ft^3/s$ (0.254 $m^3/s$), 6,510 acre-ft/yr (8.03 $hm^3/yr$); median of yearly mean discharges, 2.8 $ft^3/s$ (0.08 $m^3/s$), 2,000 acre-ft/yr (2.5 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,600 $ft^3/s$ (413 $m^3/s$) Dec. 19, 1967, gage height, 13.5 ft (4.11 m), from rating curve extended above 680 $ft^3/s$ (19.3 $m^3/s$) on basis of slope-area measurement of peak flow; no flow for most of time each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*), (from rating curve extended above, 1,800 $ft^3/s$ or 51 $m^3/s$ on basis of slope-area measurement at gage height 11.0 ft or 3.35 m) and peak discharges above base of 300 $ft^3/s$ (8.50 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) | Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Jan. 17 | 1630 | 1,900 | 53.8 | 5.99 | 1.826 | Mar. 2 | Unknown | *12,500 | 354 | a11.0 | 3.35 |
| Feb. 11 | 0900 | 1,730 | 49.0 | 5.87 | 1.789 | Mar. 5 | 2000 | 1,800 | 51.0 | †4.8 | 1.46 |
| Feb. 14 | 0200 | 1,910 | 54.1 | 6.00 | 1.829 | | | | | | |

No flow for most of year.
† About.
a From high-water profile past gage.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .00 | .00 | .00 | .00 | .00 | 3320 | .00 | .00 | .00 | .00 | .00 | .00 |
| 2 | .00 | .00 | .00 | .00 | .00 | 6000 | .00 | .00 | .00 | .00 | .00 | .00 |
| 3 | .00 | .00 | .00 | .00 | .00 | 2000 | .00 | .00 | .00 | .00 | .00 | .00 |
| 4 | .00 | .00 | .00 | .00 | .00 | 400 | .00 | .00 | .00 | .00 | .00 | .00 |
| 5 | .00 | .00 | .00 | .00 | .00 | 550 | .00 | .00 | .00 | .00 | .00 | .00 |
| 6 | .00 | .00 | .00 | .00 | .00 | 950 | .00 | .00 | .00 | .00 | .00 | .00 |
| 7 | .00 | .00 | .00 | .00 | .00 | 300 | .00 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 | 120 | .00 | .00 | .00 | .00 | .00 | .00 |
| 9 | .00 | .00 | .00 | .00 | .00 | 80 | .00 | .00 | .00 | .00 | .00 | .00 |
| 10 | .00 | .00 | .00 | .00 | .00 | 50 | .00 | .00 | .00 | .00 | .00 | .00 |
| 11 | .00 | .00 | .00 | 60 | 738 | 30 | .00 | .00 | .00 | .00 | .00 | .00 |
| 12 | .00 | .00 | .00 | .50 | 160 | 10 | .00 | .00 | .00 | .00 | .00 | .00 |
| 13 | .00 | .00 | .00 | .00 | 98 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 14 | .00 | .00 | .00 | .00 | 750 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 15 | .00 | .00 | .00 | 20 | 280 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 16 | .00 | .00 | .00 | .50 | 125 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 17 | .00 | .00 | .00 | 626 | 64 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 18 | .00 | .00 | .00 | 150 | 3.0 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 19 | .00 | .00 | .00 | 4.0 | .40 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 20 | .00 | .00 | .00 | .60 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 21 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 22 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 23 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 24 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 25 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 26 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 27 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 28 | .00 | .00 | .00 | .00 | 881 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 29 | .00 | .00 | .00 | .00 | --- | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 30 | .00 | .00 | .00 | .00 | --- | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 31 | .00 | --- | .00 | .00 | --- | .00 | --- | .00 | --- | .00 | .00 | --- |
| TOTAL | .00 | .00 | .00 | 861.60 | 3099.40 | 13810.00 | .00 | .00 | .00 | .00 | .00 | .00 |
| MEAN | .000 | .000 | .000 | 27.8 | 111 | 445 | .000 | .000 | .000 | .000 | .000 | .000 |
| MAX | .00 | .00 | .00 | 626 | 881 | 6000 | .00 | .00 | .00 | .00 | .00 | .00 |
| MIN | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| AC-FT | .00 | .00 | .00 | 1710 | 6150 | 27390 | .00 | .00 | .00 | .00 | .00 | .00 |

CAL YR 1977 TOTAL 0.00 MEAN .000 MAX .00 MIN .00 AC-FT 0
WTR YR 1978 TOTAL 17771.00 MEAN 48.7 MAX 6000 MIN .00 AC-FT 35250

NOTE.--No gage-height record Mar. 2 to May 4.

## 09513860 SKUNK CREEK NEAR PHOENIX, AZ

LOCATION.--Lat 33°43'44", long 112°07'12", in SE¼ sec.35, T.5 N., R.2 E., Maricopa County, Hydrologic Unit 15070102, on downstream side of right end of bridge on east frontage road of Interstate Highway 17, 3 mi (5 km) north of Adobe and 20 mi (32 km) north of City Hall in Phoenix.

DRAINAGE AREA.--64.6 $mi^2$ (167.3 $km^2$).

PERIOD OF RECORD.--Water years 1960-67 (annual maximums only), October 1967 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,459.95 ft (444.993 m) National Geodetic Vertical Datum of 1929. May 1961 to Sept. 30, 1967, crest-stage gage at site 100 ft (30 m) downstream at datum 5.99 ft (1.826 m) higher.

REMARKS.--Records poor.

AVERAGE DISCHARGE.--11 years, 1.65 $ft^3/s$ (0.0467 $m^3/s$), 1,200 acre-ft/yr (1.48 $hm^3/yr$); median of yearly mean discharges, 0.89 $ft^3/s$ (0.025 $m^3/s$), 640 acre-ft/yr (0.79 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,500 $ft^3/s$ (326 $m^3/s$) Aug. 1, 1964, gage height, 10.48 ft (3.194 m), present datum, from rating curve extended above 6,200 $ft^3/s$ (180 $m^3/s$); maximum gage height, 12.24 ft (3.731 m) Sept. 5, 1970; no flow for most of each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*), (from rating curve extended above 560 $ft^3/s$ or 16 $m^3/s$ on the basis of slope-conveyance estimate at gage height 8.75 ft or 2.667 m) and peak discharges above base of 100 $ft^3/s$ (2.8 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) | Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Dec. 29 | 0615 | 103 | 2.92 | 5.70 | 1.737 | Feb. 13 | 2230 | 1,080 | 30.6 | 7.45 | 2.271 |
| Jan. 10 | 2015 | 260 | 7.36 | 6.15 | 1.874 | Feb. 28 | 1900 | 3,380 | 95.7 | 9.50 | 2.895 |
| Jan. 15 | 1000 | 614 | 17.4 | 6.82 | 2.079 | Mar. 1 | 2100 | *3,590 | 102 | 9.65 | 2.941 |
| Jan. 17 | 1200 | 2,340 | 66.3 | 8.70 | 2.652 | Mar. 12 | 0800 | 380 | 10.8 | 6.40 | 1.951 |
| Feb. 11 | 0700 | 290 | 8.21 | 6.22 | 1.896 | | | | | | |

No flow for most of year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .00 | .00 | .00 | .00 | .00 | 560 | .00 | .00 | .00 | .00 | .00 | .00 |
| 2 | .00 | .00 | .00 | .00 | .00 | 809 | .00 | .00 | .00 | .00 | .00 | .00 |
| 3 | .00 | .00 | .00 | .00 | .00 | 14 | .00 | .00 | .00 | .00 | .00 | .00 |
| 4 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 5 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 6 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 7 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 9 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 10 | .00 | .00 | .00 | 48 | 13 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 11 | .00 | .00 | .00 | 16 | 42 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 12 | .00 | .00 | .00 | .00 | .00 | 35 | .00 | .00 | .00 | .00 | .00 | .00 |
| 13 | .00 | .00 | .00 | .00 | 111 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 14 | .00 | .00 | .00 | .00 | 163 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 15 | .00 | .00 | .00 | 95 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 16 | .00 | .00 | .00 | .50 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 17 | .00 | .00 | .00 | 289 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 18 | .00 | .00 | .00 | 6.0 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 19 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 20 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 21 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 22 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 23 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 24 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 25 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 26 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 27 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 28 | .00 | .00 | .00 | .00 | 347 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 29 | .00 | .00 | 10 | .00 | --- | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 30 | .00 | .00 | .00 | .00 | --- | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 31 | .00 | --- | .00 | .00 | --- | .00 | --- | .00 | --- | .00 | .00 | --- |
| TOTAL | .00 | .00 | 10.00 | 454.50 | 676.00 | 1418.00 | .00 | .00 | .00 | .00 | .00 | .00 |
| MEAN | .000 | .000 | .32 | 14.7 | 24.1 | 45.7 | .000 | .000 | .000 | .000 | .000 | .000 |
| MAX | .00 | .00 | 10 | 289 | 347 | 809 | .00 | .00 | .00 | .00 | .00 | .00 |
| MIN | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| AC-FT | .00 | .00 | 20 | 902 | 1340 | 2810 | .00 | .00 | .00 | .00 | .00 | .00 |

CAL YR 1977 TOTAL 17.00 MEAN .047 MAX 10 MIN .00 AC-FT 34
WTR YR 1978 TOTAL 2558.50 MEAN 7.01 MAX 809 MIN .00 AC-FT 5070

## 09513970 AGUA FRIA RIVER AT AVONDALE, AZ

LOCATION.--Lat 33°26'06", long 112°19'59", in NW¼ sec.14, T.1 N., R.1 W., Maricopa County, Hydrologic Unit 15070102, on downstream side of bridge on U.S. Highway 80, 0.5 mi (0.8 km) east of Avondale, and 3 mi (5 km) upstream from mouth.

DRAINAGE AREA.--2,013 $mi^2$ (5,214 $km^2$), of which 1,459 $mi^2$ (3,779 $km^2$) above Lake Pleasant is noncontributing except during periods of spill from Waddell Dam. Flood water from drainage area of 247 $mi^2$ (640 $km^2$) above McMicken Dam may be diverted into Agua Fria River basin above station.

PERIOD OF RECORD.--Water years 1960-67, 1973 (annual maximums only), October 1967 to September 1972, October 1973 to current year.

GAGE.--Water-stage recorder since Jan. 7, 1974, with supplementary crest-stage gage. Datum of gage is 952.92 ft (290.450 m) National Geodetic Vertical Datum of 1929 (Arizona Highway Department bench mark). Apr. 26, 1961, to Sept. 30, 1967, crest-stage gage; Oct. 1, 1967, to July 21, 1972, water-stage recorder (with supplementary crest-stage gage from Mar. 10 to July 22, 1972) at present site at datum 2.92 ft (0.890 m) lower. July 22, 1972, to Jan. 6, 1974, crest-stage gage only, at railroad bridge upstream at datum 2.92 ft (0.890 m) lower.

REMARKS.--Records poor. Flow partly regulated by Lake Pleasant, 35 mi (56 km) upstream. (See elsewhere in this report.) Records at times may include waste water from the Arizona Canal of the Salt River Project. Excess flood water released from McMicken Dam on Trilby Wash may enter Agua Fria River basin above station; this amount generally is negligible.

AVERAGE DISCHARGE.--10 years (water years 1968-72, 1974-78), 11.2 $ft^3/s$ (0.317 $m^3/s$), 8,110 acre-ft/yr (10.0 $hm^3/yr$); median of yearly mean discharges, 1.5 $ft^3/s$ (0.04 $m^3/s$), 1,100 acre-ft/yr (1.4 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,600 $ft^3/s$ (583 $m^3/s$) Sept. 6, 1970, gage height, 11.21 ft (3.417 m), from rating curve extended above 1,500 $ft^3/s$ (42 $m^3/s$) on basis of slope-area measurement of peak flow; maximum gage height, 12.70 ft (3.871 m) Dec. 20, 1967; no flow for most of time each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 13,100 $ft^3/s$ (371 $m^3/s$), from slope-area measurement of peak flow, Mar. 2, gage height, 5.63 ft (1.716 m), from profile past gage; no flow for most of year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .00 | .00 | .00 | .00 | .00 | 3100 | .00 | .00 | .00 | .00 | .00 | .00 |
| 2 | .00 | .00 | .00 | .00 | .00 | 7000 | .00 | .00 | .00 | .00 | .00 | .00 |
| 3 | .00 | .00 | .00 | .00 | .00 | 2200 | .00 | .00 | .00 | .00 | .00 | .00 |
| 4 | .00 | .00 | .00 | .00 | .00 | 2400 | .00 | .00 | .00 | .00 | .00 | .00 |
| 5 | .00 | .00 | .00 | .00 | .00 | 1900 | .00 | .00 | .00 | .00 | .00 | .00 |
| 6 | .00 | .00 | .00 | .00 | .00 | 6200 | .00 | .00 | .00 | .00 | .00 | .00 |
| 7 | .00 | .00 | .00 | .00 | .00 | 1600 | .00 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 | 600 | .00 | .00 | .00 | .00 | .00 | .00 |
| 9 | .00 | .00 | .00 | .00 | .00 | 100 | .00 | .00 | .00 | .00 | .00 | .00 |
| 10 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 11 | .00 | .00 | .00 | .00 | 160 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 12 | .00 | .00 | .00 | .00 | 430 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 13 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 14 | .00 | .00 | .00 | .00 | 1100 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 15 | .00 | .00 | .00 | .00 | 130 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 16 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 17 | .00 | .00 | .00 | 940 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 18 | .00 | .00 | .00 | 370 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 19 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 20 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 21 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 22 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 23 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 24 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 25 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 26 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 27 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 28 | .00 | .00 | .00 | .00 | 200 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 29 | .00 | .00 | .00 | .00 | --- | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 30 | .00 | .00 | .00 | .00 | --- | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 31 | .00 | --- | .00 | .00 | --- | .00 | --- | .00 | --- | .00 | .00 | --- |
| TOTAL | .00 | .00 | .00 | 1310.00 | 2020.00 | 25100.00 | .00 | .00 | .00 | .00 | .00 | .00 |
| MEAN | .000 | .000 | .000 | 42.3 | 72.1 | 810 | .000 | .000 | .000 | .000 | .000 | .000 |
| MAX | .00 | .00 | .00 | 940 | 1100 | 7000 | .00 | .00 | .00 | .00 | .00 | .00 |
| MIN | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| AC-FT | .00 | .00 | .00 | 2600 | 4010 | 49790 | .00 | .00 | .00 | .00 | .00 | .00 |

CAL YR 1977 TOTAL 0.00 MEAN .000 MAX .00 MIN .00 AC-FT 0
WTR YR 1978 TOTAL 28430.00 MEAN 77.9 MAX 7000 MIN .00 AC-FT 56390

NOTE.--No gage-height record Mar. 2 to July 20.

## 09515500 HASSAYAMPA RIVER AT BOX DAMSITE, NEAR WICKENBURG, AZ

LOCATION.--Lat 34°02'42", long 112°42'33", in SW¼SE¼ sec.7, T.8 N., R.4 W., Yavapai County, Hydrologic Unit 15070103, on right bank at Box damsite, 5.5 mi (8.8 km) northeast of Wickenburg.

DRAINAGE AREA.--417 $mi^2$ (1,080 $km^2$).

PERIOD OF RECORD.--January to June 1938, May 1946 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,236.12 ft (681.569 m) National Geodetic Vertical Datum of 1929. January to June 1938 at site 1 mi (2 km) downstream at datum 23.76 ft (7.242 m) lower. May 1, 1946, to Nov. 17, 1949, at present site at datum 2.16 ft (0.658 m) higher.

REMARKS.--Records poor. Small diversions for irrigation and mining above station.

AVERAGE DISCHARGE.--32 years (water years 1947-78), 18.7 $ft^3/s$ (0.530 $m^3/s$), 13,550 acre-ft/yr (16.7 $hm^3/yr$); median of yearly mean discharges, 8.1 $ft^3/s$ (0.23 $m^3/s$), 5,900 acre-ft/yr (7.3 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 58,000 $ft^3/s$ (1,640 $m^3/s$) Sept. 5, 1970, gage height, 34.6 ft (10.55 m), from profile past gage, by slope-area measurement of peak flow; no flow for many days in 1964 and 1965.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*), (from rating curve extended above 1,300 $ft^3/s$ or 37 $m^3/s$ on basis of slope-area measurement at gage height 34.6 ft or 10.55 m) and peak discharges above base of 500 $ft^3/s$ (14 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) | Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Jan. 15 | 1900 | 863 | 24.4 | 6.40 | 1.951 | Mar. 1 | 0700 | 7,710 | 218 | 10.66 | 3.249 |
| Jan. 17 | 1400 | 1,320 | 37.4 | 6.92 | 2.109 | Mar. 2 | 0530 | *16,000 | 447 | 14.50 | 4.419 |
| Feb. 11 | 0300 | 3,550 | 100 | 8.49 | 2.588 | Mar. 5 | 1400 | 2,780 | 78.7 | 6.52 | 1.987 |
| Feb. 13 | 2300 | 584 | 16.5 | 6.27 | 1.911 | | | | | | |

Minimum daily, 1.1 $ft^3/s$ (0.031 $m^3/s$) Oct. 1-5, 25, 26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1.1 | 1.5 | 1.7 | 2.0 | 164 | 5030 | 127 | 42 | 3.9 | 2.1 | 32 | 2.5 |
| 2 | 1.1 | 1.5 | 1.5 | 2.0 | 100 | 6480 | 139 | 43 | 3.9 | 1.9 | 16 | 2.5 |
| 3 | 1.1 | 1.5 | 1.5 | 2.0 | 72 | 3620 | 133 | 42 | 3.6 | 1.9 | 8.0 | 2.5 |
| 4 | 1.1 | 1.7 | 1.5 | 1.9 | 55 | 1240 | 115 | 36 | 3.9 | 1.9 | 2.5 | 2.5 |
| 5 | 1.1 | 1.7 | 1.5 | 1.9 | 50 | 2000 | 112 | 34 | 2.9 | 1.9 | 2.5 | 2.5 |
| 6 | 17 | 1.7 | 1.5 | 1.9 | 53 | 1830 | 103 | 30 | 2.9 | 1.8 | 2.5 | 2.5 |
| 7 | 7.4 | 1.7 | 1.5 | 1.8 | 68 | 1660 | 95 | 27 | 2.3 | 1.3 | 2.8 | 2.5 |
| 8 | 3.6 | 1.7 | 1.5 | 1.8 | 88 | 1480 | 124 | 29 | 2.1 | 1.5 | 2.5 | 2.5 |
| 9 | 3.0 | 1.7 | 1.7 | 1.7 | 95 | 1400 | 139 | 25 | 2.6 | 1.5 | 2.5 | 2.5 |
| 10 | 2.5 | 1.5 | 1.7 | 11 | 243 | 1300 | 121 | 23 | 2.6 | 1.3 | 2.5 | 2.5 |
| 11 | 2.0 | 1.5 | 1.5 | 45 | 1040 | 1220 | 100 | 21 | 2.6 | 1.3 | 29 | 2.5 |
| 12 | 1.5 | 1.5 | 1.5 | 10 | 180 | 1440 | 95 | 19 | 1.9 | 1.3 | 10 | 2.5 |
| 13 | 1.5 | 1.7 | 1.5 | 1.6 | 212 | 1210 | 88 | 19 | 2.3 | 1.9 | 3.5 | 2.5 |
| 14 | 1.5 | 1.7 | 1.5 | 2.1 | 272 | 1050 | 81 | 17 | 2.6 | 2.1 | 2.5 | 2.5 |
| 15 | 1.5 | 1.7 | 1.7 | 230 | 260 | 890 | 76 | 15 | 2.6 | 2.3 | 2.5 | 2.5 |
| 16 | 1.5 | 1.9 | 1.7 | 110 | 200 | 744 | 74 | 14 | 2.9 | 2.1 | 2.5 | 2.5 |
| 17 | 1.5 | 2.1 | 1.9 | 300 | 184 | 612 | 68 | 14 | 2.6 | 2.3 | 2.5 | 2.5 |
| 18 | 1.5 | 2.1 | 1.7 | 8.0 | 176 | 500 | 62 | 14 | 2.6 | 2.6 | 2.5 | 2.5 |
| 19 | 1.5 | 2.1 | 1.7 | 3.2 | 164 | 392 | 60 | 12 | 2.9 | 2.9 | 2.5 | 2.5 |
| 20 | 1.5 | 2.1 | 1.7 | 52 | 157 | 285 | 53 | 12 | 2.9 | 3.5 | 2.5 | 2.5 |
| 21 | 1.5 | 1.9 | 1.7 | 45 | 157 | 200 | 52 | 10 | 3.2 | 3.9 | 2.5 | 2.5 |
| 22 | 1.7 | 1.9 | 1.7 | 8.5 | 157 | 310 | 52 | 8.5 | 3.2 | 3.5 | 2.5 | 2.5 |
| 23 | 1.5 | 1.9 | 1.9 | 5.5 | 168 | 252 | 52 | 7.9 | 3.2 | 3.5 | 2.5 | 2.5 |
| 24 | 1.3 | 1.9 | 2.1 | 4.7 | 184 | 188 | 48 | 7.4 | 2.1 | 3.5 | 2.5 | 2.5 |
| 25 | 1.1 | 1.9 | 2.1 | 4.3 | 168 | 139 | 45 | 6.9 | 2.1 | 5.9 | 2.5 | 2.5 |
| 26 | 1.1 | 1.9 | 2.3 | 4.3 | 168 | 118 | 44 | 6.9 | 2.3 | 7.4 | 2.5 | 2.5 |
| 27 | 1.3 | 1.9 | 2.1 | 4.3 | 176 | 121 | 44 | 6.9 | 3.2 | 4.7 | 2.5 | 2.5 |
| 28 | 1.5 | 1.9 | 36 | 3.5 | 744 | 121 | 40 | 5.1 | 2.9 | 3.9 | 2.5 | 2.5 |
| 29 | 2.1 | 1.9 | 4.0 | 3.2 | --- | 118 | 39 | 3.9 | 3.2 | 4.3 | 2.5 | 2.5 |
| 30 | 1.5 | 1.9 | 3.0 | 3.2 | --- | 118 | 38 | 3.9 | 2.9 | 4.7 | 2.5 | 2.5 |
| 31 | 1.5 | --- | 2.0 | 106 | --- | 115 | --- | 3.9 | --- | 6.9 | 2.5 | --- |
| TOTAL | 70.6 | 53.6 | 90.9 | 982.4 | 5755 | 36183 | 2419 | 559.3 | 84.9 | 91.6 | 161.3 | 75.0 |
| MEAN | 2.28 | 1.79 | 2.93 | 31.7 | 206 | 1167 | 80.6 | 18.0 | 2.83 | 2.95 | 5.20 | 2.50 |
| MAX | 17 | 2.1 | 36 | 300 | 1040 | 6480 | 139 | 43 | 3.9 | 7.4 | 32 | 2.5 |
| MIN | 1.1 | 1.5 | 1.5 | 1.6 | 50 | 115 | 38 | 3.9 | 1.9 | 1.3 | 2.5 | 2.5 |
| AC-FT | 140 | 106 | 180 | 1950 | 11420 | 71770 | 4800 | 1110 | 168 | 182 | 320 | 149 |

CAL YR 1977 TOTAL 761.4 MEAN 2.09 MAX 36 MIN 1.0 AC-FT 1510
WTR YR 1978 TOTAL 46526.6 MEAN 127 MAX 6480 MIN 1.1 AC-FT 92290

NOTE.--No gage-height record Aug. 3 to Sept. 30.

## 09517000 HASSAYAMPA RIVER NEAR ARLINGTON, AZ

LOCATION.--Lat 33°20'50", long 112°43'30", in NW¼ sec.13, T.1 S., R.5 W., Maricopa County, Hydrologic Unit 15070104, at former U.S. Highway 80, 1.8 mi (2.9 km) upstream from mouth and 2.8 mi (4.5 km) northeast of Arlington.

DRAINAGE AREA.--1,470 $mi^2$ (3,810 $km^2$), approximately.

PERIOD OF RECORD.--Water years 1961-77 (annual maximums only), October 1977 to current year (discharge above 500 $ft^3/s$ or 14 $m^3/s$ only).

GAGE.--Water-stage recorder. Datum of gage is 831.91 ft (253.566 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records poor. Only daily discharges above 500 $ft^3/s$ (14 $m^3/s$) are published. Records do not include irrigation return flow past station. Small diversions above station for irrigation and livestock.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 39,000 $ft^3/s$ (1,100 $m^3/s$) Sept. 5, 1970, gage height 8.40 ft (2.560 m), result of slope-area measurement of peak flow; no natural flow for most of time each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 20,400 $ft^3/s$ (578 $m^3/s$) Mar. 2, gage height, 5.80 ft (1.768 m), result of slope-area measurement, base discharge, 1,000 $ft^3/s$ (28.3 $m^3/s$); no flow for most of year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | 2700 | | | | | | |
| 2 | | | | | | 4540 | | | | | | |
| 3 | | | | | | 2430 | | | | | | |
| 4 | | | | | | --- | | | | | | |
| 5 | | | | | | --- | | | | | | |
| 6 | | | | | | --- | | | | | | |
| 7 | | | | | | --- | | | | | | |
| 8 | | | | | | --- | | | | | | |
| 9 | | | | | | --- | | | | | | |
| 10 | | | | | | --- | | | | | | |
| 11 | | | | | | --- | | | | | | |
| 12 | | | | | | --- | | | | | | |
| 13 | | | | | | --- | | | | | | |
| 14 | | | | | | --- | | | | | | |
| 15 | | | | | | --- | | | | | | |
| 16 | | | | | | --- | | | | | | |
| 17 | | | | | | --- | | | | | | |
| 18 | | | | | | --- | | | | | | |
| 19 | | | | | | --- | | | | | | |
| 20 | | | | | | --- | | | | | | |
| 21 | | | | | | --- | | | | | | |
| 22 | | | | | | --- | | | | | | |
| 23 | | | | | | --- | | | | | | |
| 24 | | | | | | --- | | | | | | |
| 25 | | | | | | --- | | | | | | |
| 26 | | | | | | --- | | | | | | |
| 27 | | | | | | --- | | | | | | |
| 28 | | | | | | --- | | | | | | |
| 29 | | | | | | --- | | | | | | |
| 30 | | | | | | --- | | | | | | |
| 31 | | | | | | --- | | | | | | |
| TOTAL | | | | | | --- | | | | | | |
| MEAN | | | | | | --- | | | | | | |
| MAX | | | | | | --- | | | | | | |
| MIN | | | | | | --- | | | | | | |
| AC-FT | | | | | | --- | | | | | | |

## 09517500 CENTENNIAL WASH NEAR ARLINGTON, AZ

LOCATION.--Lat 33°16'12", long 112°47'50", in sec.7, T.2 S., R.5 W., Maricopa County, Hydrologic Unit 15070104, on upstream side of ford on former U.S. Highway 80, 3.0 mi (4.8 km) upstream from Gillespie Dam and 4.4 mi (7.1 km) southwest of Arlington.

DRAINAGE AREA.--1,810 $mi^2$ (4,690 $km^2$), approximately.

PERIOD OF RECORD.--January 1961 to current year.

GAGE.--Water-stage recorder. Datum of gage is 773.22 ft (235.677 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records poor. Flow regulated by several small retention dams in upper end of basin. Records do not include irrigation return flow past station.

AVERAGE DISCHARGE.--17 years, 3.89 $ft^3/s$ (0.110 $m^3/s$), 2,820 acre-ft/yr (3.48 $hm^3/yr$); median of yearly mean discharges, 2.2 $ft^3/s$ (0.062 $m^3/s$), 1,600 acre-ft/yr (1.97 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,500 $ft^3/s$ (411 $m^3/s$) July 23, 1961, gage height, 4.70 ft (1.433 m), from rating curve extended above 5,500 $ft^3/s$ (160 $m^3/s$); maximum gage height, 4.71 ft (1.436 m) Sept. 5, 1970; no flow for most of time each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*), (from rating curve extended above 5,500 $ft^3/s$ or 160 $m^3/s$) and peak discharges above base of 1,000 $ft^3/s$ (28 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|
| Feb. 14 | 0400 | 1,210 | 34.3 | 3.73 | 1.137 |
| Mar. 2 | 0930 | *10,900 | 309 | 4.64 | 1.414 |
| Aug. 4 | 0300 | 1,340 | 37.9 | 3.75 | 1.143 |

No flow for most of year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 2 | .00 | .00 | .00 | .00 | .00 | 3260 | .00 | .00 | .00 | .00 | .00 | .00 |
| 3 | .00 | .00 | .00 | .00 | .00 | 215 | .00 | .00 | .00 | .00 | .00 | .00 |
| 4 | .00 | .00 | .00 | .00 | .00 | 1.2 | .00 | .00 | .00 | .00 | 348 | .00 |
| 5 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .60 | .00 |
| 6 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 7 | .00 | .00 | .00 | .00 | .00 | 83 | .00 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 9 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 10 | .00 | .00 | .00 | 203 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 11 | .00 | .00 | .00 | .00 | 116 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 12 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 13 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 14 | .00 | .00 | .00 | .00 | 394 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 15 | .00 | .00 | .00 | .00 | 11 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 16 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 17 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 18 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 19 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 20 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 21 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 22 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 23 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 24 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 25 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 26 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 27 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 28 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 29 | .00 | .00 | .00 | .00 | --- | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 30 | .00 | .00 | .00 | .00 | --- | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 31 | .00 | --- | .00 | .00 | --- | .00 | --- | .00 | --- | .00 | .00 | --- |
| TOTAL | .00 | .00 | .00 | 203.00 | 521.00 | 3559.20 | .00 | .00 | .00 | .00 | 348.60 | .00 |
| MEAN | .000 | .000 | .000 | 6.55 | 18.6 | 115 | .000 | .000 | .000 | .000 | 11.2 | .000 |
| MAX | .00 | .00 | .00 | 203 | 394 | 3260 | .00 | .00 | .00 | .00 | 348 | .00 |
| MIN | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| AC-FT | .00 | .00 | .00 | 403 | 1030 | 7060 | .00 | .00 | .00 | .00 | 691 | .00 |

CAL YR 1977 TOTAL 0.00 MEAN .000 MAX .00 MIN .00 AC-FT .00
WTR YR 1978 TOTAL 4631.80 MEAN 12.7 MAX 3260 MIN .00 AC-FT 9190

## 09518000 GILA RIVER ABOVE DIVERSIONS, AT GILLESPIE DAM, AZ
(National stream-quality accounting network and pesticide station)

LOCATION.--Lat 33°13'45", long 112°46'00", in SE¼NE¼ sec.28, T.2 S., R.5 W., Maricopa County, Hydrologic Unit 15070101, at Gillespie Dam, 8 mi (13 km) downstream from Hassayampa River. Gila Bend Canal diverts from left end, and Enterprise Canal diverts from right end of Gillespie Dam.

DRAINAGE AREA.--49,650 $mi^2$ (128,600 $km^2$).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1935 to November 1939 (monthly discharge only published in WSP 1313), December 1939 to September 1971 (published with records for sta 09519500, Gila River below Gillespie Dam), 1972 and 1973 (water year estimates only, listed in REMARKS for sta 09519500), October 1973 to current year. Low-flow records prior to October 1970 are not equivalent as leakage less than 5 $ft^3/s$ (0.14 $m^3/s$) is not included.

09518500. Gila Bend Canal: May 1935 to September 1971, October 1973 to current year (since October 1941, monthly discharge only).

09519000. Enterprise Canal: June 1935 to September 1939 (discharge measurements and monthly estimates only), October 1939 to September 1971, April 1974 to current year (since October 1941, monthly discharge only). Published as "Gillespie Canal" prior to 1951.

GAGE.--Gila Bend Canal: Water-stage recorder 200 ft (60.9 m) downstream from headgates.
Enterprise Canal: Water-stage recorder 600 ft (180 m) downstream from intake at dam.

REMARKS.--Records good except those below 1,000 $ft^3/s$ (28.3 $m^3/s$), which are fair. Record is obtained by combining, on a daily basis, the flows of Gila Bend Canal, Enterprise Canal, and Gila River below Gillespie Dam (see sta 09519500).

Many large diversions above station for irrigation, municipal, and industrial use. Flow of Gila River and tributaries above this station is regulated by San Carlos Reservoir on Gila River—capacity, 1,073,000 acre-ft (1,320 $hm^3$); by a series of reservoirs on Salt River—capacity, 1,755,000 acre-ft (2,160 $hm^3$); by Bartlett and Horseshoe Reservoirs on Verde River—capacity, 317,700 acre-ft (392 $hm^3$); and by Lake Pleasant on Agua Fria River—capacity, 157,600 acre-ft (194 $hm^3$).

AVERAGE DISCHARGE.--43 years, 193 $ft^3/s$ (5.466 $m^3/s$), 139,800 acre-ft/yr (172 $hm^3/yr$); median of yearly mean discharges, 71 $ft^3/s$ (2.01 $m^3/s$), 51,400 acre-ft/yr (63 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 80,800 $ft^3/s$ (2,290 $m^3/s$) Mar. 4, 1978; no flow except for possible leakage of less than 5 $ft^3/s$ (0.14 $m^3/s$) Nov. 24-27, 1966, July 14, 1967.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 80,800 $ft^3/s$ (2,290 $m^3/s$) Mar. 4; minimum daily, 44 $ft^3/s$ (1.25 $m^3/s$) Sept. 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 112 | 201 | 70 | 211 | 282 | 156 | 525 | 90 | 95 | 56 | 45 | 62 |
| 2 | 106 | 216 | 71 | 191 | 282 | 4980 | 471 | 100 | 96 | 51 | 55 | 75 |
| 3 | 90 | 221 | 72 | 147 | 282 | 39600 | 750 | 93 | 98 | 57 | 60 | 72 |
| 4 | 81 | 211 | 72 | 107 | 281 | 80800 | 535 | 88 | 97 | 62 | 78 | 68 |
| 5 | 62 | 229 | 72 | 211 | 282 | 40900 | 400 | 80 | 86 | 64 | 53 | 68 |
| 6 | 72 | 221 | 124 | 233 | 282 | 23100 | 339 | 82 | 78 | 65 | 50 | 53 |
| 7 | 77 | 216 | 170 | 210 | 282 | 25500 | 286 | 82 | 66 | 61 | 65 | 45 |
| 8 | 81 | 237 | 124 | 233 | 282 | 20200 | 289 | 84 | 63 | 59 | 101 | 44 |
| 9 | 66 | 253 | 170 | 256 | 305 | 24200 | 275 | 88 | 67 | 68 | 108 | 49 |
| 10 | 70 | 266 | 172 | 235 | 307 | 12500 | 272 | 89 | 90 | 66 | 115 | 58 |
| 11 | 71 | 261 | 172 | 435 | 383 | 3330 | 263 | 92 | 85 | 63 | 104 | 78 |
| 12 | 82 | 250 | 194 | 329 | 355 | 1760 | 249 | 93 | 83 | 74 | 96 | 79 |
| 13 | 73 | 266 | 170 | 210 | 257 | 1250 | 236 | 90 | 75 | 68 | 73 | 71 |
| 14 | 68 | 264 | 77 | 190 | 490 | 801 | 228 | 92 | 73 | 71 | 65 | 70 |
| 15 | 69 | 198 | 170 | 211 | 433 | 658 | 229 | 98 | 63 | 75 | 60 | 84 |
| 16 | 70 | 122 | 214 | 210 | 433 | 546 | 211 | 86 | 59 | 80 | 72 | 84 |
| 17 | 1140 | 99 | 214 | 233 | 661 | 477 | 173 | 75 | 69 | 85 | 70 | 82 |
| 18 | 738 | 165 | 214 | 328 | 790 | 434 | 144 | 76 | 73 | 80 | 72 | 79 |
| 19 | 323 | 181 | 237 | 255 | 792 | 434 | 135 | 81 | 66 | 63 | 73 | 76 |
| 20 | 199 | 209 | 237 | 233 | 805 | 748 | 143 | 83 | 56 | 54 | 77 | 74 |
| 21 | 162 | 81 | 215 | 305 | 684 | 910 | 153 | 84 | 59 | 54 | 66 | 59 |
| 22 | 174 | 73 | 195 | 434 | 455 | 1150 | 143 | 79 | 61 | 56 | 57 | 58 |
| 23 | 173 | 70 | 214 | 434 | 275 | 1310 | 141 | 78 | 69 | 65 | 59 | 68 |
| 24 | 164 | 68 | 214 | 329 | 230 | 1360 | 136 | 83 | 84 | 81 | 63 | 85 |
| 25 | 143 | 68 | 193 | 281 | 177 | 3720 | 137 | 94 | 90 | 91 | 74 | 86 |
| 26 | 221 | 69 | 214 | 234 | 138 | 4390 | 129 | 101 | 92 | 115 | 92 | 86 |
| 27 | 198 | 68 | 173 | 234 | 140 | 2400 | 120 | 95 | 78 | 110 | 92 | 80 |
| 28 | 188 | 69 | 148 | 257 | 178 | 1960 | 109 | 94 | 59 | 76 | 83 | 69 |
| 29 | 234 | 70 | 193 | 257 | --- | 1520 | 105 | 97 | 49 | 72 | 71 | 77 |
| 30 | 211 | 70 | 258 | 258 | --- | 1140 | 101 | 96 | 61 | 78 | 58 | 81 |
| 31 | 186 | --- | 235 | 283 | --- | 675 | --- | 93 | --- | 50 | 58 | --- |
| TOTAL | 5704 | 4992 | 5268 | 7974 | 10543 | 302909 | 7427 | 2736 | 2240 | 2170 | 2265 | 2120 |
| MEAN | 184 | 166 | 170 | 257 | 377 | 9771 | 248 | 88.3 | 74.7 | 70.0 | 73.1 | 70.7 |
| MAX | 1140 | 266 | 258 | 435 | 805 | 80800 | 750 | 101 | 98 | 115 | 115 | 86 |
| MIN | 62 | 68 | 70 | 107 | 138 | 156 | 101 | 75 | 49 | 50 | 45 | 44 |
| AC-FT | 11310 | 9900 | 10450 | 15820 | 20910 | 600800 | 14730 | 5430 | 4440 | 4300 | 4490 | 4210 |
| (†) | 629 | 147 | 133 | 125 | 654 | 3040 | 6070 | 3940 | 2770 | 2810 | 3420 | 2470 |
| (‡) | 1370 | 1220 | 1290 | 1150 | 1030 | 919 | 1060 | 674 | 1030 | 1060 | 572 | 1090 |

CAL YR 1977 TOTAL 35935 MEAN 98.5 MAX 1140 MIN 24 AC-FT 71280
WTR YR 1978 TOTAL 356348 MEAN 976 MAX 80800 MIN 44 AC-FT 706800

† Diversions, in acre-feet, to Gila Bend Canal (sta 09518500). For records prior to 1972, see sta 09519500.
‡ Diversions, in acre-feet, to Enterprise Canal (sta 09519000). For records prior to 1972, see sta 09519500.

09518000 GILA RIVER ABOVE DIVERSIONS, AT GILLESPIE DAM, AZ--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--December 1950 to September 1971, March 1974 to current year.
Prior to October 1967, published as 09519500, Gila River below Gillespie Dam, Ariz.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1964 to September 1971, April 1974 to current year.
WATER TEMPERATURES: December 1950 to September 1971, April 1974 to current year.

REMARKS.--Unpublished daily specific conductance measurements for period December 1950 to September 1964 available from district office in Tucson, Ariz.

COOPERATION.--Pesticide analysis performed by Environmental Protection Agency.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 13,200 micromhos July 10, 11, 1966; minimum daily, 236 micromhos Dec. 28, 1967.
WATER TEMPERATURES: Maximum, 36.5°C July 8, 1958, July 22, 1959, Aug. 5, 8, 1966; minimum, 1.5°C Jan. 1, 1951.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 6,220 micromhos June 9; minimum daily, 431 micromhos Mar. 10.
WATER TEMPERATURES: Maximum, 32.0°C July 1, 3, 7; minimum, 10.0°C Jan. 25.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | TUR-BID-ITY (JTU) | TUR-BID-ITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) | COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 26... | 1045 | 221 | 5380 | 7.9 | 18.5 | 65 | -- | 7.7 | 2600 |
| NOV | | | | | | | | | |
| 30... | 1430 | 70 | 4220 | 7.8 | 14.0 | 55 | -- | 8.5 | 420 |
| DEC | | | | | | | | | |
| 28... | 1145 | 148 | 4420 | 7.7 | 14.7 | 20 | -- | 6.4 | 740 |
| JAN | | | | | | | | | |
| 24... | 1145 | 329 | 2100 | 7.9 | 10.0 | 280 | -- | 8.6 | K1380 |
| FEB | | | | | | | | | |
| 28... | 1200 | 178 | 4250 | 7.8 | 15.6 | 80 | -- | 6.2 | -- |
| APR | | | | | | | | | |
| 05... | 1600 | 400 | 3420 | 8.0 | 21.0 | 50 | -- | 9.4 | K180 |
| MAY | | | | | | | | | |
| 04... | 1045 | 86 | -- | 8.0 | 22.0 | 80 | -- | 8.3 | K700 |
| JUN | | | | | | | | | |
| 08... | 0930 | 63 | 5780 | 7.8 | 26.0 | 60 | -- | 8.2 | 240 |
| JUL | | | | | | | | | |
| 07... | 1030 | 61 | 5200 | 8.0 | 26.0 | -- | 75 | 10.2 | K1800 |
| AUG | | | | | | | | | |
| 03... | 1430 | 60 | 5100 | 8.2 | 30.0 | 130 | 130 | 10.0 | 9200 |
| 31... | 1000 | 58 | 4450 | 8.0 | 25.5 | 60 | 63 | 9.2 | 8000 |
| SEP | | | | | | | | | |
| 28... | 1000 | 69 | 4300 | 7.9 | 24.5 | -- | 60 | 7.7 | 4300 |

| DATE | STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | BICAR-BONATE (MG/L AS HCO3) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 26... | 510 | 940 | 690 | 210 | 100 | 820 | 12 | 10 | 300 |
| NOV | | | | | | | | | |
| 30... | 2300 | 830 | 580 | 180 | 92 | 670 | 10 | 13 | 300 |
| DEC | | | | | | | | | |
| 28... | 820 | 910 | 670 | 200 | 100 | 760 | 11 | 12 | 290 |
| JAN | | | | | | | | | |
| 24... | 3000 | 390 | 230 | 96 | 36 | 280 | 6.2 | 9.5 | 190 |
| FEB | | | | | | | | | |
| 28... | -- | 830 | 630 | 190 | 87 | 670 | 10 | 14 | 250 |
| APR | | | | | | | | | |
| 05... | 520 | 660 | 470 | 150 | 70 | 540 | 9.1 | 10 | 240 |
| MAY | | | | | | | | | |
| 04... | 390 | 1000 | 760 | 240 | 100 | 870 | 12 | 14 | 310 |
| JUN | | | | | | | | | |
| 08... | -- | 990 | 740 | 240 | 95 | 900 | 12 | 12 | 300 |
| JUL | | | | | | | | | |
| 07... | K4940 | 950 | 760 | 200 | 110 | 790 | 11 | 12 | -- |
| AUG | | | | | | | | | |
| 03... | 19400 | 920 | 680 | 210 | 95 | 740 | 11 | 11 | -- |
| 31... | 2500 | 880 | 650 | 200 | 92 | 710 | 10 | 10 | -- |
| SEP | | | | | | | | | |
| 28... | 2200 | 640 | 420 | 190 | 40 | 720 | 12 | 12 | -- |

K Based on non-ideal colony count.

09518000 GILA RIVER ABOVE DIVERSIONS, AT GILLESPIE DAM, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | CARBONATE (MG/L AS CO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | SOLIDS, DISSOLVED (TONS PER AC-FT) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 26... | 0 | 790 | 1100 | 2.3 | 32 | 3390 | 3210 | 4.61 |
| NOV | | | | | | | | |
| 30... | 0 | 630 | 910 | 1.9 | 30 | 2880 | 2670 | 3.92 |
| DEC | | | | | | | | |
| 28... | 0 | 690 | 1000 | 2.2 | 31 | 3140 | 2940 | 4.27 |
| JAN | | | | | | | | |
| 24... | 0 | 280 | 370 | 1.3 | 21 | 1280 | 1190 | 1.74 |
| FEB | | | | | | | | |
| 28... | 0 | 630 | 1000 | 1.8 | 23 | 2760 | 2740 | 3.75 |
| APR | | | | | | | | |
| 05... | 0 | 460 | 860 | 1.2 | 20 | 2180 | 2230 | 2.96 |
| MAY | | | | | | | | |
| 04... | 0 | 770 | 1200 | 2.1 | 29 | 3650 | 3380 | 4.96 |
| JUN | | | | | | | | |
| 08... | 0 | 820 | 1400 | 2.2 | 24 | 3710 | 3640 | 5.05 |
| JUL | | | | | | | | |
| 07... | -- | 740 | 1200 | 2.0 | 22 | 3410 | 3190 | 4.64 |
| AUG | | | | | | | | |
| 03... | -- | 630 | 1100 | 1.9 | 26 | 3320 | 2960 | 4.52 |
| 31... | -- | 680 | 1000 | 2.4 | 30 | 3130 | 2860 | 4.26 |
| SEP | | | | | | | | |
| 28... | -- | 660 | 970 | 2.0 | 23 | 2830 | 2750 | 3.85 |

| DATE | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN, AMMONIA TOTAL (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N) | NITROGEN, ORGANIC TOTAL (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | NITROGEN, NH4 + ORG. SUSP. TOTAL (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N) | NITROGEN, TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | PHOSPHORUS, DISSOLVED (MG/L AS P) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 26... | 14 | 1.6 | -- | -- | -- | -- | -- | 2.7 | -- | 4.3 | 6.0 |
| NOV | | | | | | | | | | | |
| 30... | -- | -- | -- | -- | -- | -- | -- | 3.8 | -- | -- | 4.2 |
| DEC | | | | | | | | | | | |
| 28... | 13 | 5.8 | -- | -- | -- | -- | -- | 6.9 | -- | 3.9 | 3.9 |
| JAN | | | | | | | | | | | |
| 24... | 7.6 | 1.8 | -- | -- | -- | -- | -- | 3.2 | -- | 2.0 | 1.5 |
| FEB | | | | | | | | | | | |
| 28... | 2.1 | 3.6 | -- | -- | 1.3 | 4.9 | .00 | 5.0 | 7.0 | 3.1 | 2.9 |
| APR | | | | | | | | | | | |
| 05... | 6.8 | .37 | -- | -- | 2.1 | 2.5 | 1.4 | 1.1 | 9.3 | 1.8 | .99 |
| MAY | | | | | | | | | | | |
| 04... | .00 | .76 | 2.5 | 1.7 | 1.7 | -- | .80 | -- | 11 | 1.4 | .88 |
| JUN | | | | | | | | | | | |
| 08... | 12 | .35 | -- | -- | 2.5 | 2.8 | 1.3 | 1.5 | 15 | .96 | .63 |
| JUL | | | | | | | | | | | |
| 07... | 11 | .32 | -- | -- | 2.6 | 2.9 | 1.9 | 1.0 | 14 | .93 | .44 |
| AUG | | | | | | | | | | | |
| 03... | 14 | .10 | -- | -- | 2.9 | 3.0 | 1.8 | 1.2 | 17 | 1.4 | .77 |
| 31... | 14 | .16 | -- | -- | 1.9 | 2.1 | 1.8 | .27 | 16 | 1.3 | 1.3 |
| SEP | | | | | | | | | | | |
| 28... | 13 | 1.6 | -- | -- | 1.3 | 2.9 | .80 | 2.1 | 16 | 3.2 | 2.9 |

09518000 GILA RIVER ABOVE DIVERSIONS, AT GILLESPIE DAM, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | ARSENIC TOTAL (UG/L AS AS) | ARSENIC DIS-SOLVED (UG/L AS AS) | BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) | BARIUM, DIS-SOLVED (UG/L AS BA) | BORON, TOTAL RECOV-ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) | CADMIUM DIS-SOLVED (UG/L AS CD) | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) | CHRO-MIUM, DIS-SOLVED (UG/L AS CR) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 26... | 12 | 14 | 300 | 200 | 540 | 20 | 0 | 30 | 5 |
| NOV | | | | | | | | | |
| 30... | 12 | -- | 300 | -- | 2500 | 0 | -- | 0 | -- |
| DEC | | | | | | | | | |
| 28... | 10 | -- | 0 | -- | 2600 | 2 | -- | 20 | -- |
| JAN | | | | | | | | | |
| 24... | 11 | 10 | 200 | 100 | 990 | 5 | 2 | 30 | 10 |
| FEB | | | | | | | | | |
| 28... | 9 | -- | 200 | -- | 2000 | 0 | -- | 20 | -- |
| APR | | | | | | | | | |
| 05... | 13 | -- | 200 | -- | 1400 | 2 | -- | 10 | -- |
| MAY | | | | | | | | | |
| 04... | 11 | 9 | 300 | 100 | 3000 | 3 | 1 | 10 | 0 |
| JUN | | | | | | | | | |
| 08... | 11 | -- | 200 | -- | 2900 | 1 | -- | 5 | -- |
| JUL | | | | | | | | | |
| 07... | 8 | -- | 400 | -- | 2600 | 10 | -- | 20 | -- |
| AUG | | | | | | | | | |
| 03... | 11 | 8 | 300 | 200 | 2900 | 1 | 0 | 10 | 10 |
| 31... | 14 | -- | 200 | -- | 2800 | 0 | -- | 0 | -- |
| SEP | | | | | | | | | |
| 28... | 10 | -- | 0 | -- | 2400 | 1 | -- | 10 | -- |

| DATE | COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) | COBALT, DIS-SOLVED (UG/L AS CO) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) | COPPER, DIS-SOLVED (UG/L AS CU) | IRON, TOTAL RECOV-ERABLE (UG/L AS FE) | IRON, DIS-SOLVED (UG/L AS FE) | LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) | LEAD, DIS-SOLVED (UG/L AS PB) | MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 26... | <50 | 0 | <10 | 6 | 2600 | 30 | 100 | 6 | 130 |
| NOV | | | | | | | | | |
| 30... | -- | -- | 16 | -- | 140 | -- | 11 | -- | 120 |
| DEC | | | | | | | | | |
| 28... | -- | -- | 10 | -- | 660 | -- | 6 | -- | 160 |
| JAN | | | | | | | | | |
| 24... | 8 | 1 | 44 | 8 | 12000 | 20 | 38 | 1 | 450 |
| FEB | | | | | | | | | |
| 28... | -- | -- | 19 | -- | 4100 | -- | 11 | -- | 550 |
| APR | | | | | | | | | |
| 05... | -- | -- | 10 | -- | 1800 | -- | 22 | -- | 390 |
| MAY | | | | | | | | | |
| 04... | 5 | 0 | 20 | 2 | 3400 | 0 | 32 | 12 | 260 |
| JUN | | | | | | | | | |
| 08... | -- | -- | 15 | -- | 2600 | -- | 7 | -- | 180 |
| JUL | | | | | | | | | |
| 07... | -- | -- | 18 | -- | 3200 | -- | 28 | -- | 200 |
| AUG | | | | | | | | | |
| 03... | 5 | 0 | 30 | 4 | 5800 | 30 | 11 | 0 | 290 |
| 31... | -- | -- | 20 | -- | 4000 | -- | 17 | -- | 160 |
| SEP | | | | | | | | | |
| 28... | -- | -- | 15 | -- | 3600 | -- | 15 | -- | 200 |

< Actual value is known to be less than value shown.

09518000 GILA RIVER ABOVE DIVERSIONS, AT GILLESPIE DAM, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | MANGANESE, DISSOLVED (UG/L AS MN) | MERCURY TOTAL RECOVERABLE (UG/L AS HG) | MERCURY DISSOLVED (UG/L AS HG) | SELENIUM, TOTAL (UG/L AS SE) | SELENIUM, DISSOLVED (UG/L AS SE) | SILVER, TOTAL RECOVERABLE (UG/L AS AG) | SILVER, DISSOLVED (UG/L AS AG) | ZINC, TOTAL RECOVERABLE (UG/L AS ZN) | ZINC, DISSOLVED (UG/L AS ZN) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 26... | 20 | .0 | .0 | 9 | 11 | <10 | 0 | 90 | 20 |
| NOV | | | | | | | | | |
| 30... | -- | .0 | -- | 10 | -- | 1 | -- | 40 | -- |
| DEC | | | | | | | | | |
| 28... | -- | .0 | -- | 8 | -- | 0 | -- | 10 | -- |
| JAN | | | | | | | | | |
| 24... | 90 | .0 | .0 | 4 | 4 | 1 | 0 | 90 | 20 |
| FEB | | | | | | | | | |
| 28... | -- | .0 | -- | 6 | -- | 0 | -- | 70 | -- |
| APR | | | | | | | | | |
| 05... | -- | .0 | -- | 1 | -- | 0 | -- | 20 | -- |
| MAY | | | | | | | | | |
| 04... | 140 | .0 | .0 | 8 | 2 | 1 | 0 | 60 | 30 |
| JUN | | | | | | | | | |
| 08... | -- | .0 | -- | 7 | -- | 0 | -- | 50 | -- |
| JUL | | | | | | | | | |
| 07... | -- | .0 | -- | 5 | -- | 2 | -- | 30 | -- |
| AUG | | | | | | | | | |
| 03... | 40 | .1 | .0 | 9 | 8 | 0 | 0 | 40 | 20 |
| 31... | -- | .0 | -- | 8 | -- | 0 | -- | 60 | -- |
| SEP | | | | | | | | | |
| 28... | -- | .0 | -- | 7 | -- | 0 | -- | 40 | -- |

| DATE | CARBON, ORGANIC TOTAL (MG/L AS C) | CARBON, ORGANIC DISSOLVED (MG/L AS C) | CARBON, ORGANIC SUSPENDED TOTAL (MG/L AS C) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS (UG/L) | PCB, TOTAL (UG/L) | PCB, TOTAL IN BOTTOM MATERIAL (UG/KG) | ALDRIN, TOTAL (UG/L) | ALDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) | ATRAZINE, TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | |
| 26... | 6.6 | -- | -- | .01 | 1 | -- | -- | -- | -- | -- |
| NOV | | | | | | | | | | |
| 30... | 8.1 | -- | -- | .01 | 3 | -- | -- | -- | -- | ND |
| DEC | | | | | | | | | | |
| 28... | 6.7 | -- | -- | .01 | 3 | -- | -- | -- | -- | -- |
| JAN | | | | | | | | | | |
| 24... | 11 | -- | -- | .01 | 4 | -- | -- | -- | -- | -- |
| FEB | | | | | | | | | | |
| 28... | 10 | -- | -- | .01 | 6 | ND | -- | ND | -- | ND |
| APR | | | | | | | | | | |
| 05... | 7.9 | -- | -- | .01 | 2 | -- | -- | -- | -- | -- |
| MAY | | | | | | | | | | |
| 04... | -- | 8.2 | .6 | .01 | 0 | ND | ND | ND | ND | ND |
| JUN | | | | | | | | | | |
| 08... | 10 | -- | -- | .01 | 1 | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | | |
| 07... | 15 | -- | -- | .01 | 0 | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | | |
| 03... | 15 | -- | -- | .01 | 1 | -- | -- | -- | -- | -- |
| 31... | 7.7 | -- | .8 | .00 | 1 | -- | -- | -- | -- | -- |
| SEP | | | | | | | | | | |
| 28... | -- | -- | -- | .01 | 1 | -- | -- | -- | -- | -- |

< Actual value is known to be less than value shown.
ND Material specifically analyzed for but not detected.

09518000 GILA RIVER ABOVE DIVERSIONS, AT GILLESPIE DAM, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | CHLOR-DANE, TOTAL (UG/L) | CHLOR-DANE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | DDD, TOTAL (UG/L) | DDD, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | DDE, TOTAL (UG/L) | DDT, TOTAL (UG/L) | DDT, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | DI-AZINON, TOTAL (UG/L) | DI-AZINON, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | DI-ELDRIN TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | |
| 26... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | | | | | |
| 30... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| DEC | | | | | | | | | | |
| 28... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JAN | | | | | | | | | | |
| 24... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | | | | | |
| 28... | ND | -- | ND | -- | ND | ND | -- | .17 | -- | ND |
| APR | | | | | | | | | | |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MAY | | | | | | | | | | |
| 04... | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| JUN | | | | | | | | | | |
| 08... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | | |
| 07... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | | |
| 03... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 31... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| SEP | | | | | | | | | | |
| 28... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

| DATE | DI-ELDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | ENDRIN, TOTAL (UG/L) | ENDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | ETHION, TOTAL (UG/L) | ETHION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | HEPTA-CHLOR, TOTAL (UG/L) | HEPTA-CHLOR, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | HEPTA-CHLOR EPOXIDE TOTAL (UG/L) | HEPTA-CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG) | LINDANE TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | |
| 26... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | | | | | |
| 30... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| DEC | | | | | | | | | | |
| 28... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JAN | | | | | | | | | | |
| 24... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | | | | | |
| 28... | -- | ND | -- | ND | -- | ND | -- | ND | -- | ND |
| APR | | | | | | | | | | |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MAY | | | | | | | | | | |
| 04... | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| JUN | | | | | | | | | | |
| 08... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | | |
| 07... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | | |
| 03... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 31... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| SEP | | | | | | | | | | |
| 28... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

ND Material specifically analyzed for but not detected.

09518000 GILA RIVER ABOVE DIVERSIONS, AT GILLESPIE DAM, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | LINDANE TOTAL IN BOTTOM MATERIAL (UG/KG) | MALATHION, TOTAL (UG/L) | MALATHION, TOTAL IN BOTTOM MATERIAL (UG/KG) | METHOXYCHLOR, TOTAL (UG/L) | METHOXYCHLOR, TOT. IN BOTTOM MATL. (UG/KG) | METHYL PARATHION, TOTAL (UG/L) | METHYL PARATHION, TOT. IN BOTTOM MATL. (UG/KG) | METHYL TRITHION, TOTAL (UG/L) | METHYL TRITHION, TOT. IN BOTTOM MATL. (UG/KG) | PARATHION, TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | |
| 26... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | | | | | |
| 30... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| DEC | | | | | | | | | | |
| 28... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JAN | | | | | | | | | | |
| 24... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | | | | | |
| 28... | -- | ND | -- | ND | -- | ND | -- | ND | -- | ND |
| APR | | | | | | | | | | |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MAY | | | | | | | | | | |
| 04... | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| JUN | | | | | | | | | | |
| 08... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | | |
| 07... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | | |
| 03... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 31... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| SEP | | | | | | | | | | |
| 28... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

| DATE | PARATHION, TOTAL IN BOTTOM MATERIAL (UG/KG) | SIMAZINE TOTAL COULSON COND. (UG/L) | TOXAPHENE, TOTAL (UG/L) | TOXAPHENE, TOTAL IN BOTTOM MATERIAL (UG/KG) | TOTAL TRITHION (UG/L) | TRITHION, TOTAL IN BOTTOM MATERIAL (UG/KG) | 2,4-D, TOTAL (UG/L) | 2,4,5-T TOTAL (UG/L) | SILVEX, TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 26... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | | | | |
| 30... | -- | ND | -- | -- | -- | -- | ND | ND | ND |
| DEC | | | | | | | | | |
| 28... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JAN | | | | | | | | | |
| 24... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | | | | |
| 28... | -- | ND | 0 | -- | ND | -- | ND | ND | ND |
| APR | | | | | | | | | |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MAY | | | | | | | | | |
| 04... | ND | ND | 0 | ND | ND | ND | -- | -- | -- |
| JUN | | | | | | | | | |
| 08... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | |
| 07... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | |
| 03... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 31... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| SEP | | | | | | | | | |
| 28... | -- | -- | -- | -- | -- | -- | -- | -- | -- |

ND Material specifically analyzed for but not detected.

09518000 GILA RIVER ABOVE DIVERSIONS, AT GILLESPIE DAM, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | TEMPER-ATURE (DEG C) | SEDI-MENT, SUS-PENDED (MG/L) | SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM | SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) | LENGTH OF EXPO-SURE (DAYS) | PHYTO-PLANK-TON, TOTAL (CELLS PER ML) | PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M | PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M | CHLOR-A PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) | CHLOR-B PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 26... | 1045 | 18.5 | 128 | 97 | 76 | 20 | -- | 9.05 | 6.46 | 12.7 | 9.66 |
| NOV | | | | | | | | | | | |
| 30... | 1430 | 14.0 | 120 | 92 | 23 | -- | 7100 | -- | -- | -- | -- |
| DEC | | | | | | | | | | | |
| 28... | 1145 | 14.7 | 651 | 5 | 260 | -- | -- | -- | -- | -- | -- |
| JAN | | | | | | | | | | | |
| 24... | 1145 | 10.0 | 311 | 97 | 276 | 27 | -- | 13.2 | 9.37 | 5.85 | 3.73 |
| APR | | | | | | | | | | | |
| 05... | 1600 | 21.0 | 87 | 87 | 94 | -- | 16000 | -- | -- | -- | -- |
| MAY | | | | | | | | | | | |
| 04... | 1045 | 22.0 | 155 | 51 | 37 | -- | -- | -- | -- | -- | -- |
| JUN | | | | | | | | | | | |
| 08... | 0930 | 26.0 | 114 | 93 | 19 | -- | 25000 | -- | -- | -- | -- |
| JUL | | | | | | | | | | | |
| 07... | 1030 | 26.0 | 179 | 97 | -- | -- | 50000 | -- | -- | -- | -- |
| AUG | | | | | | | | | | | |
| 03... | 1430 | 30.0 | 267 | 92 | 43 | -- | 18000 | -- | -- | -- | -- |
| 31... | 1000 | 25.5 | 134 | 93 | 21 | -- | 22000 | -- | -- | -- | -- |
| SEP | | | | | | | | | | | |
| 28... | 1000 | 24.5 | 310 | 56 | 58 | 28 | 16000 | 23.0 | 18.6 | 15.0 | 1.69 |

09518000 GILA RIVER ABOVE DIVERSIONS, AT GILLESPIE DAM, AZ--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5200 | 4300 | 3800 | --- | 2050 | --- | 2890 | 5750 | 5600 | 5040 | 5000 | 4450 |
| 2 | --- | 4100 | 3800 | --- | 2150 | --- | --- | 5290 | 5470 | --- | 5500 | 4300 |
| 3 | 4500 | 4300 | 3900 | 3820 | 1950 | --- | 3750 | 5110 | 5390 | 5500 | 5500 | --- |
| 4 | 5500 | 4200 | --- | 3820 | 3380 | --- | 2500 | 5440 | --- | --- | 2730 | --- |
| 5 | 5300 | 4200 | 3800 | 3820 | --- | --- | 2850 | 5500 | 5820 | 5510 | 2730 | 4410 |
| 6 | 5500 | --- | 3900 | 3330 | 3500 | 771 | 3550 | 6050 | 5420 | 5260 | --- | 4400 |
| 7 | 4300 | 4500 | 3900 | 3550 | 3620 | 700 | 4150 | --- | 5110 | 5110 | 4900 | 4570 |
| 8 | 4900 | 4300 | 3800 | --- | 3370 | 590 | 4600 | 5620 | 5800 | 5040 | 4500 | 4900 |
| 9 | --- | 4100 | 3900 | 3620 | 3500 | 639 | --- | 5300 | 6220 | --- | 4100 | 4690 |
| 10 | --- | 4000 | 3600 | 3500 | 3510 | 431 | 4960 | 5900 | 5560 | 5310 | 4200 | --- |
| 11 | 4700 | 4000 | --- | 2570 | 2520 | 810 | 4710 | 5900 | --- | 5400 | 4000 | 4690 |
| 12 | 5200 | 4200 | 4500 | 1340 | --- | --- | 4580 | 5250 | 5450 | 5000 | --- | 4350 |
| 13 | 4900 | --- | 4400 | 2850 | 3500 | 1300 | 4600 | 5800 | 5380 | 5030 | --- | 3990 |
| 14 | 4400 | 4100 | 4600 | 2890 | 1660 | 2360 | 4700 | --- | 5550 | 5240 | 4650 | 4100 |
| 15 | 4800 | 4200 | 5000 | --- | 1000 | 2920 | 4780 | 5420 | 5710 | 5300 | 5000 | 3920 |
| 16 | --- | 4700 | 3800 | 3100 | 2410 | 3270 | --- | 5420 | 5400 | --- | 5150 | 4020 |
| 17 | 1300 | 4700 | 3800 | 3040 | 1180 | 3760 | 4950 | 5200 | 5380 | 5050 | 5150 | --- |
| 18 | 1200 | 4700 | --- | 2810 | 1000 | 4280 | 4920 | 5390 | --- | 5120 | 5000 | 3690 |
| 19 | 1900 | 4500 | 3700 | 2000 | --- | --- | 5170 | 5500 | 5320 | 4690 | 4900 | 3520 |
| 20 | 2800 | --- | 3800 | 2000 | --- | 4490 | 5010 | 5690 | 6110 | 4760 | --- | 3490 |
| 21 | 3500 | 4700 | 4900 | 1650 | 1020 | 2180 | 5300 | --- | 5700 | 4820 | 5500 | 4100 |
| 22 | 3800 | 4900 | 3900 | --- | 1320 | 2170 | 5090 | 5510 | 5500 | 5460 | 4950 | 3960 |
| 23 | --- | 4600 | 5100 | 1350 | 2130 | 2000 | --- | 5500 | 5450 | --- | 5600 | 4030 |
| 24 | 4000 | --- | 5300 | 1710 | 2880 | 1890 | 5000 | 5320 | 5080 | 4820 | 5100 | --- |
| 25 | 4400 | 4200 | --- | 1930 | 3550 | 1790 | 5300 | 5220 | --- | 4500 | 4750 | 3700 |
| 26 | --- | 4200 | --- | --- | --- | --- | 5200 | 5120 | 5420 | 4360 | 5900 | 3510 |
| 27 | 5000 | --- | 4800 | 2850 | 4600 | --- | 5400 | 4950 | 5390 | 3820 | --- | 3600 |
| 28 | 4600 | 4000 | 4300 | 2950 | 4100 | 1180 | 5150 | --- | 5210 | 3660 | 5900 | 4100 |
| 29 | 4800 | 4000 | 4500 | --- | --- | 1300 | 4800 | --- | 5600 | 4140 | 5900 | 4000 |
| 30 | 4800 | 4100 | 4100 | 3450 | --- | 1570 | --- | 5200 | 5100 | --- | 5100 | 4010 |
| 31 | 4000 | --- | 3900 | 3480 | --- | 2000 | --- | 5110 | --- | 4480 | 5200 | --- |
| MAX | 5500 | 4900 | 5300 | 3820 | 4600 | 4490 | 5400 | 6050 | 6220 | 5510 | 5900 | 4900 |
| MIN | 1200 | 4000 | 3600 | 1340 | 1000 | 431 | 2500 | 4950 | 5080 | 3660 | 2730 | 3490 |

WTR YR 1978 MAX 6220 MIN 431

09518000 GILA RIVER ABOVE DIVERSIONS, AT GILLESPIE DAM, AZ--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 24.0 | 19.0 | 14.0 | --- | 16.0 | --- | 21.0 | 21.0 | 25.0 | 32.0 | 30.0 | 27.0 |
| 2 | --- | 18.0 | 13.0 | --- | 16.0 | --- | --- | 22.0 | 24.0 | --- | 29.0 | 27.0 |
| 3 | 23.0 | 18.0 | 13.0 | 14.0 | 17.0 | --- | 20.0 | 24.0 | 24.5 | 32.0 | 29.0 | --- |
| 4 | 24.0 | 19.0 | --- | 14.5 | 16.0 | --- | 21.0 | 26.0 | --- | --- | 26.5 | --- |
| 5 | 25.0 | 19.0 | 13.0 | 14.5 | --- | --- | 20.0 | 24.0 | 25.0 | 31.0 | 29.5 | 29.0 |
| 6 | 25.0 | --- | 13.0 | 15.0 | 16.0 | 15.0 | 21.0 | 22.0 | 25.0 | 31.0 | --- | 27.5 |
| 7 | 25.0 | 17.0 | 12.0 | 14.5 | 16.0 | 15.0 | 21.0 | --- | 26.0 | 32.0 | 29.0 | 28.5 |
| 8 | 25.0 | 16.0 | 12.0 | --- | 17.0 | 16.0 | 19.5 | 21.0 | 25.0 | 25.0 | 30.0 | 27.0 |
| 9 | --- | 15.0 | 12.0 | 13.0 | 17.0 | 15.0 | --- | 23.0 | 27.0 | --- | 29.0 | 27.5 |
| 10 | --- | 15.0 | 13.0 | 13.0 | 18.0 | 14.0 | 15.0 | 23.5 | 26.5 | 31.0 | 30.0 | --- |
| 11 | 25.0 | 15.0 | --- | 12.0 | 14.5 | 15.0 | 19.0 | 23.5 | --- | 29.5 | 30.0 | 26.0 |
| 12 | 24.0 | 16.0 | 13.0 | 12.0 | --- | --- | 21.0 | 23.5 | 24.5 | 29.0 | --- | 25.0 |
| 13 | 23.0 | --- | 12.0 | 13.0 | 16.0 | 12.5 | 22.0 | 26.0 | 25.5 | 29.5 | --- | 25.0 |
| 14 | 23.0 | 16.0 | 12.0 | 13.5 | 13.0 | 16.0 | 21.5 | --- | 24.5 | 29.5 | 28.5 | 25.0 |
| 15 | 22.0 | 15.0 | 13.0 | --- | 11.0 | 17.0 | 21.5 | 24.5 | 25.0 | 30.0 | 27.0 | 25.0 |
| 16 | --- | 15.0 | 13.0 | 14.5 | 13.0 | 17.0 | --- | 23.0 | 25.0 | --- | 27.5 | 26.0 |
| 17 | 22.0 | 15.0 | 12.0 | 14.5 | 11.0 | 19.0 | 19.5 | 21.0 | 23.0 | 29.0 | 27.0 | --- |
| 18 | 22.0 | 15.0 | --- | 15.0 | 10.5 | 18.5 | 23.0 | 22.0 | --- | 29.0 | 27.5 | 24.5 |
| 19 | 22.0 | 12.0 | 12.0 | 15.0 | --- | --- | 25.0 | 22.5 | 25.0 | 27.0 | 27.5 | 23.0 |
| 20 | 21.0 | --- | 11.0 | 13.0 | --- | 21.0 | 25.0 | 24.0 | 27.0 | 31.0 | --- | 21.0 |
| 21 | 20.0 | 19.0 | 12.0 | 13.0 | 12.0 | 21.0 | 21.0 | --- | 23.0 | 30.0 | 27.0 | 20.5 |
| 22 | 20.0 | 13.0 | 12.0 | --- | 14.0 | 21.0 | 24.0 | 24.0 | 24.5 | 26.0 | 28.0 | --- |
| 23 | --- | 14.0 | 13.0 | 12.0 | 16.0 | 20.0 | --- | 24.0 | 25.0 | --- | 28.0 | 23.5 |
| 24 | 24.0 | --- | 13.0 | 10.5 | 15.0 | 20.0 | 22.0 | 24.0 | 25.5 | 28.5 | 28.0 | 24.5 |
| 25 | 20.0 | 15.0 | --- | 10.0 | 17.0 | 20.0 | 24.0 | 23.5 | --- | 29.0 | 27.0 | --- |
| 26 | --- | 15.0 | --- | --- | --- | --- | 25.0 | 22.0 | 25.0 | 30.0 | 25.0 | 26.0 |
| 27 | 19.0 | --- | 15.0 | 11.0 | 16.0 | --- | 24.0 | 27.0 | 25.0 | 30.0 | --- | 26.0 |
| 28 | 19.0 | 15.0 | 15.0 | 13.5 | 17.0 | 20.0 | 24.0 | --- | 22.5 | 30.0 | 25.0 | 25.0 |
| 29 | 20.0 | 15.0 | 12.0 | --- | --- | 21.0 | 25.0 | --- | 25.0 | 30.5 | 25.0 | 25.0 |
| 30 | 21.0 | 14.0 | 12.0 | 15.5 | --- | 21.0 | --- | --- | 24.0 | --- | 25.0 | 25.5 |
| 31 | 19.0 | --- | 15.0 | 16.0 | --- | 23.0 | --- | 25.5 | --- | 29.5 | 26.0 | --- |
| MAX | 25.0 | 19.0 | 15.0 | 16.0 | 18.0 | 23.0 | 25.0 | 27.0 | 27.0 | 32.0 | 30.0 | 29.0 |
| MIN | 19.0 | 12.0 | 11.0 | 10.0 | 10.5 | 12.5 | 15.0 | 21.0 | 22.5 | 25.0 | 25.0 | 20.5 |

WTR YR 1978 MAX 32.0 MIN 10.0

09518000 GILA RIVER ABOVE DIVERSIONS, AT GILLESPIE DAM, AZ--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

PHYTOPLANKTON

| DATE | NOV 30,77 | | APR 5,78 | | JUN 8,78 | | JUL 7,78 | |
|---|---|---|---|---|---|---|---|---|
| TIME | 1430 | | 1600 | | 0930 | | 1030 | |
| TOTAL CELLS/ML | 7100 | | 16000 | | 25000 | | 50000 | |
| DIVERSITY: DIVISION | 1.7 | | 0.7 | | 1.4 | | 0.1 | |
| .CLASS | 1.7 | | 0.7 | | 1.4 | | 0.1 | |
| ..ORDER | 1.8 | | 1.6 | | 1.9 | | 0.1 | |
| ...FAMILY | 2.6 | | 2.0 | | 2.5 | | 0.1 | |
| ....GENUS | 2.7 | | 2.1 | | 2.7 | | 0.1 | |
| ORGANISM | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT |
| CHLOROPHYTA (GREEN ALGAE) | | | | | | | | |
| .CHLOROPHYCEAE | | | | | | | | |
| ..CHLOROCOCCALES | | | | | | | | |
| ...CHARACIACEAE | | | | | | | | |
| ....SCHRUEDERIA | -- | - | -- | - | -- | - | -- | - |
| ...COELASTRACEAE | | | | | | | | |
| ....COELASTRUM | -- | - | -- | - | -- | - | -- | - |
| ...MICRACTINIACEAE | | | | | | | | |
| ....MICRACTINIUM | -- | - | 1600 | 10 | 3200 | 13 | -- | - |
| ...OOCYSTACEAE | | | | | | | | |
| ....ANKISTRODESMUS | * | 0 | 500 | 3 | * | 0 | -- | - |
| ....CHODATELLA | 91 | 1 | -- | - | -- | - | -- | - |
| ....OOCYSTIS | -- | - | -- | - | 800 | 3 | -- | - |
| ....TREUBARIA | -- | - | 130 | 1 | -- | - | -- | - |
| ...SCENEDESMACEAE | | | | | | | | |
| ....ACTINASTRUM | -- | - | 1000 | 6 | -- | - | -- | - |
| ....CRUCIGENIA | * | 0 | -- | - | 4800# | 20 | -- | - |
| ....SCENEDESMUS | 2300# | 32 | 500 | 3 | 1200 | 5 | 970 | 2 |
| ....TETRASTRUM | -- | - | -- | - | -- | - | -- | - |
| ..TETRASPORALES | | | | | | | | |
| ...PALMELLACEAE | | | | | | | | |
| ....SPHAEROCYSTIS | -- | - | -- | - | 300 | 1 | -- | - |
| ..VOLVOCALES | | | | | | | | |
| ...CHLAMYDOMONADACEAE | | | | | | | | |
| ....CARTERIA | -- | - | -- | - | 700 | 3 | -- | - |
| ....CHLAMYDOMONAS | 46 | 1 | 10000# | 61 | -- | - | -- | - |
| ...VOLVOCACEAE | | | | | | | | |
| ....EUDORINA | -- | - | -- | - | -- | - | -- | - |
| CHRYSOPHYTA | | | | | | | | |
| .BACILLARIOPHYCEAE | | | | | | | | |
| ..PENNALES | | | | | | | | |
| ...NAVICULACEAE | | | | | | | | |
| ....ENTOMONEIS | 200 | 3 | * | 0 | -- | - | -- | - |
| ..CENTRALES | | | | | | | | |
| ...COSCINODISCACEAE | | | | | | | | |
| ....CYCLOTELLA | 140 | 2 | 1300 | 8 | 8500# | 35 | 49000# | 98 |
| ....MELOSIRA | 91 | 1 | -- | - | -- | - | -- | - |
| ....STEPHANODISCUS | -- | - | -- | - | -- | - | -- | - |
| ..PENNALES | | | | | | | | |
| ...CYMBELLACEAE | | | | | | | | |
| ....AMPHORA | 46 | 1 | -- | - | -- | - | -- | - |
| ...FRAGILARIACEAE | | | | | | | | |
| ....SYNEDRA | -- | - | 750 | 5 | -- | - | -- | - |
| ...GOMPHONEMATACEAE | | | | | | | | |
| ....GOMPHONEMA | 46 | 1 | -- | - | -- | - | -- | - |
| ...NAVICULACEAE | | | | | | | | |
| ....CALONEIS | -- | - | -- | - | 200 | 1 | -- | - |
| ....NAVICULA | 46 | 1 | 130 | 1 | 900 | 4 | -- | - |
| ....PINNULARIA | -- | - | -- | - | * | 0 | -- | - |
| ...NITZSCHIACEAE | | | | | | | | |
| ....NITZSCHIA | 590 | 8 | -- | - | 300 | 1 | -- | - |
| ...SURIRELLACEAE | | | | | | | | |
| ....SURIRELLA | 110 | 2 | -- | - | -- | - | -- | - |
| CRYPTOPHYTA (CRYPTOMONADS) | | | | | | | | |
| .CRYPTOPHYCEAE | | | | | | | | |
| ..CRYPTOMONADALES | | | | | | | | |
| ...CRYPTOCHRYSIDACEAE | | | | | | | | |
| ....CHROOMONAS | * | 0 | -- | - | -- | - | -- | - |
| ...CRYPTOMONADACEAE | | | | | | | | |
| ....CRYPTOMONAS | 68 | 1 | -- | - | -- | - | -- | - |
| CYANOPHYTA (BLUE-GREEN ALGAE) | | | | | | | | |
| .CYANOPHYCEAE | | | | | | | | |
| ..HORMOGONALES | | | | | | | | |
| ...NOSTOCACEAE | | | | | | | | |
| ....ANABAENA | -- | - | -- | - | -- | - | -- | - |
| ....ANABAENOPSIS | 1300# | 18 | -- | - | -- | - | -- | - |
| ...OSCILLATORIACEAE | | | | | | | | |
| ....OSCILLATORIA | 2000# | 28 | -- | - | 3500 | 14 | -- | - |
| EUGLENOPHYTA (EUGLENOIDS) | | | | | | | | |
| .EUGLENOPHYCEAE | | | | | | | | |
| ..EUGLENALES | | | | | | | | |
| ...EUGLENACEAE | | | | | | | | |
| ....EUGLENA | 91 | 1 | 500 | 3 | -- | - | -- | - |
| ....PHACUS | * | 0 | -- | - | -- | - | -- | - |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

09518000 GILA RIVER ABOVE DIVERSIONS, AT GILLESPIE DAM, AZ--Continued

| DATE | AUG 3,78 | AUG 31,78 | SEP 28,78 |
|---|---|---|---|
| TIME | 1430 | 1000 | 1000 |
| TOTAL CELLS/ML | 18000 | 22000 | 16000 |
| DIVERSITY: DIVISION | 1.5 | 1.4 | 1.3 |
| .CLASS | 1.5 | 1.4 | 1.3 |
| ..ORDER | 1.8 | 1.6 | 1.5 |
| ...FAMILY | 2.4 | 1.7 | 1.5 |
| ....GENUS | 2.5 | 1.8 | 1.5 |

| ORGANISM | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT |
|---|---|---|---|---|---|---|
| CHLOROPHYTA (GREEN ALGAE) | | | | | | |
| .CHLOROPHYCEAE | | | | | | |
| ..CHLOROCOCCALES | | | | | | |
| ...CHARACIACEAE | | | | | | |
| ....SCHROEDERIA | * | 0 | 120 | 1 | -- | - |
| ...COELASTRACEAE | | | | | | |
| ....COELASTRUM | 370 | 2 | -- | - | -- | - |
| ...MICRACTINIACEAE | | | | | | |
| ....MICRACTINIUM | 2200 | 12 | 490 | 2 | -- | - |
| ...OOCYSTACEAE | | | | | | |
| ....ANKISTRODESMUS | 370 | 2 | 120 | 1 | -- | - |
| ....CHODATELLA | -- | - | -- | - | -- | - |
| ....OOCYSTIS | -- | - | -- | - | -- | - |
| ....TREUBARIA | -- | - | -- | - | -- | - |
| ...SCENEDESMACEAE | | | | | | |
| ....ACTINASTRUM | 370 | 2 | -- | - | -- | - |
| ....CRUCIGENIA | -- | - | -- | - | -- | - |
| ....SCENEDESMUS | 1500 | 8 | 2900 | 13 | 3600# | 22 |
| ....TETRASTRUM | -- | - | 490 | 2 | -- | - |
| ..TETRASPORALES | | | | | | |
| ...PALMELLACEAE | | | | | | |
| ....SPHAEROCYSTIS | 180 | 1 | -- | - | -- | - |
| ..VOLVOCALES | | | | | | |
| ...CHLAMYDOMONADACEAE | | | | | | |
| ....CARTERIA | -- | - | -- | - | -- | - |
| ....CHLAMYDOMONAS | -- | - | -- | - | -- | - |
| ...VOLVOCACEAE | | | | | | |
| ....EUDORINA | 1500 | 8 | -- | - | -- | - |
| CHRYSOPHYTA | | | | | | |
| .BACILLARIOPHYCEAE | | | | | | |
| ..PENNALES | | | | | | |
| ...NAVICULACEAE | | | | | | |
| ....ENTOMONEIS | -- | - | -- | - | -- | - |
| ..CENTRALES | | | | | | |
| ...COSCINODISCACEAE | | | | | | |
| ....CYCLOTELLA | -- | - | 12000# | 55 | 10000# | 61 |
| ....MELOSIRA | -- | - | -- | - | -- | - |
| ....STEPHANODISCUS | 8500# | 47 | -- | - | -- | - |
| ..PENNALES | | | | | | |
| ...CYMBELLACEAE | | | | | | |
| ....AMPHORA | -- | - | -- | - | -- | - |
| ...FRAGILARIACEAE | | | | | | |
| ....SYNEDRA | -- | - | -- | - | -- | - |
| ...GOMPHONEMATACEAE | | | | | | |
| ....GOMPHONEMA | -- | - | -- | - | -- | - |
| ...NAVICULACEAE | | | | | | |
| ....CALONEIS | -- | - | -- | - | -- | - |
| ....NAVICULA | -- | - | -- | - | 100 | 1 |
| ....PINNULARIA | -- | - | -- | - | -- | - |
| ...NITZSCHIACEAE | | | | | | |
| ....NITZSCHIA | -- | - | 610 | 3 | 300 | 2 |
| ...SURIRELLACEAE | | | | | | |
| ....SURIRELLA | -- | - | -- | - | -- | - |
| CRYPTOPHYTA (CRYPTOMONADS) | | | | | | |
| .CRYPTOPHYCEAE | | | | | | |
| ..CRYPTOMONADALES | | | | | | |
| ...CRYPTOCHRYSIDACEAE | | | | | | |
| ....CHROOMONAS | -- | - | -- | - | -- | - |
| ...CRYPTOMONADACEAE | | | | | | |
| ....CRYPTOMONAS | -- | - | -- | - | -- | - |
| CYANOPHYTA (BLUE-GREEN ALGAE) | | | | | | |
| .CYANOPHYCEAE | | | | | | |
| ..HORMOGONALES | | | | | | |
| ...NOSTOCACEAE | | | | | | |
| ....ANABAENA | 680 | 4 | -- | - | 2400 | 15 |
| ....ANABAENOPSIS | -- | - | -- | - | -- | - |
| ...OSCILLATORIACEAE | | | | | | |
| ....OSCILLATORIA | 2400 | 13 | 5100# | 23 | -- | - |
| EUGLENOPHYTA (EUGLENOIDS) | | | | | | |
| .EUGLENOPHYCEAE | | | | | | |
| ..EUGLENALES | | | | | | |
| ...EUGLENACEAE | | | | | | |
| ....EUGLENA | -- | - | -- | - | -- | - |
| ....PHACUS | -- | - | -- | - | -- | - |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

## 09519500 GILA RIVER BELOW GILLESPIE DAM, AZ

LOCATION.--Lat 33°13'45", long 112°46'00", in SE¼NE¼ sec.28, T.2 S., R.5 W., Maricopa County, Hydrologic Unit 15070101, at left end of Gillespie Dam, 8 mi (13 km) downstream from Hassayampa River.

DRAINAGE AREA.--49,650 $mi^2$ (128,600 $km^2$).

PERIOD OF RECORD.--August 1921 to current year. Low-flow records prior to October 1970 are not equivalent as leakage of less than 5 $ft^3/s$ (0.14 $m^3/s$) not included, and from October 1971 to September 1973, when no leakage was included. Annual estimate of leakage was listed in REMARKS for the 1972 water year. Prior to 1939, published as "at Gillespie Dam."

REVISED RECORDS.--WSP 1213: 1939. WSP 1243: 1924(M). WSP 1926: Drainage area.

GAGE.--Water-stage recorder since July 28, 1924. Datum of gage is 9.95 ft (3.033 m) below average elevation of crest of dam, which is 753.46 ft (229.655 m) National Geodetic Vertical Datum of 1929. Prior to Nov. 11, 1924, depth of water read on crest at left end of dam. Nov. 11, 1924, to July 22, 1932, datum of gage was at average elevation of dam crest. July 23, 1932, to Apr. 27, 1955, datum of gage was 5.00 ft (1.524 m) below average elevation of crest of dam. Since Apr. 2, 1974, supplementary water-stage recorder and concrete control 70 ft (21.3 m) downstream from crest of dam at datum 5.64 ft (1.719 m) lower than datum of base gage.

REMARKS.--Records good except those below 1,000 $ft^3/s$ (28.3 $m^3/s$), which are fair. Flow consists of water passing over the dam, and through the dam, but does not include water diverted to Gila Bend or Enterprise Canals. See sta 09518000, Gila River above diversions, at Gillespie Dam, for records of flow reaching dam, and of diversions to Gila Bend and Enterprise Canals.
For diversions and regulation above station, see REMARKS for sta 09518000.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 92,900 $ft^3/s$ (2,630 $m^3/s$) Mar. 3, 1978, gage height, 16.08 ft (4.901 m), present datum; maximum gage height, 16.1 ft (4.91 m) Jan. 2, 1966; probably no flow at times—periods of no flow unknown due to not publishing leakage of less than 5 $ft^3/s$ (0.14 $m^3/s$).

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge since at least 1891, 250,000 $ft^3/s$ (7,100 $m^3/s$), estimated, in February 1891.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*) and peak discharges above base of 1,000 $ft^3/s$ (28.3 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|
| Oct. 17 | 1800 | 1,480 | 41.9 | 10.47 | 3.191 |
| Mar. 3 | 1730 | *92,900 | 2,630 | 16.08 | 4.901 |
| Mar. 26 | 0015 | 5,480 | 155 | 11.04 | 3.365 |

Minimum daily, 7.0 $ft^3/s$ (0.20 $m^3/s$) June 20, 26, 27, 30, July 3 to Aug. 14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 48 | 178 | 48 | 190 | 260 | 113 | 405 | 15 | 16 | 8.0 | 7.0 | 9.0 |
| 2 | 45 | 193 | 49 | 170 | 260 | 4920 | 353 | 14 | 17 | 8.0 | 7.0 | 10 |
| 3 | 40 | 198 | 50 | 127 | 260 | 39500 | 629 | 14 | 17 | 7.0 | 7.0 | 10 |
| 4 | 36 | 188 | 50 | 87 | 260 | 80700 | 408 | 14 | 17 | 7.0 | 7.0 | 11 |
| 5 | 22 | 206 | 50 | 190 | 260 | 40800 | 276 | 12 | 17 | 7.0 | 7.0 | 11 |
| 6 | 26 | 198 | 102 | 213 | 260 | 23000 | 221 | 11 | 14 | 7.0 | 7.0 | 10 |
| 7 | 29 | 192 | 148 | 190 | 260 | 25400 | 171 | 11 | 12 | 7.0 | 7.0 | 10 |
| 8 | 30 | 213 | 102 | 213 | 260 | 20100 | 167 | 11 | 11 | 7.0 | 7.0 | 10 |
| 9 | 38 | 229 | 148 | 236 | 284 | 24100 | 142 | 11 | 11 | 7.0 | 7.0 | 10 |
| 10 | 42 | 243 | 149 | 213 | 284 | 12400 | 145 | 11 | 12 | 7.0 | 7.0 | 10 |
| 11 | 42 | 257 | 149 | 413 | 359 | 3270 | 152 | 12 | 12 | 7.0 | 7.0 | 10 |
| 12 | 43 | 226 | 171 | 308 | 335 | 1700 | 114 | 13 | 12 | 7.0 | 7.0 | 10 |
| 13 | 42 | 243 | 147 | 190 | 236 | 1210 | 97 | 12 | 12 | 7.0 | 7.0 | 10 |
| 14 | 43 | 241 | 54 | 170 | 469 | 778 | 95 | 12 | 12 | 7.0 | 7.0 | 10 |
| 15 | 45 | 176 | 147 | 190 | 413 | 620 | 97 | 13 | 12 | 7.0 | 8.0 | 10 |
| 16 | 46 | 100 | 190 | 190 | 413 | 522 | 82 | 14 | 10 | 7.0 | 9.0 | 10 |
| 17 | 1110 | 77 | 190 | 213 | 641 | 472 | 53 | 12 | 8.0 | 7.0 | 9.0 | 10 |
| 18 | 713 | 142 | 190 | 308 | 769 | 428 | 28 | 12 | 8.0 | 7.0 | 9.0 | 10 |
| 19 | 298 | 157 | 213 | 236 | 769 | 428 | 20 | 13 | 8.0 | 7.0 | 9.0 | 10 |
| 20 | 174 | 185 | 213 | 213 | 769 | 727 | 20 | 14 | 7.0 | 7.0 | 9.0 | 11 |
| 21 | 137 | 57 | 190 | 284 | 641 | 863 | 20 | 14 | 8.0 | 7.0 | 9.0 | 11 |
| 22 | 149 | 50 | 170 | 413 | 413 | 1090 | 19 | 15 | 8.0 | 7.0 | 9.0 | 11 |
| 23 | 148 | 47 | 190 | 413 | 236 | 1240 | 18 | 14 | 8.0 | 7.0 | 9.0 | 11 |
| 24 | 139 | 45 | 190 | 308 | 190 | 1290 | 16 | 13 | 9.0 | 7.0 | 9.0 | 12 |
| 25 | 118 | 45 | 170 | 260 | 130 | 3620 | 15 | 15 | 8.0 | 7.0 | 9.0 | 12 |
| 26 | 195 | 46 | 190 | 213 | 83 | 4270 | 15 | 15 | 7.0 | 7.0 | 9.0 | 13 |
| 27 | 173 | 46 | 150 | 213 | 70 | 2280 | 14 | 13 | 7.0 | 7.0 | 9.0 | 13 |
| 28 | 162 | 47 | 126 | 236 | 110 | 1850 | 14 | 13 | 8.0 | 7.0 | 9.0 | 13 |
| 29 | 206 | 48 | 170 | 236 | --- | 1410 | 13 | 15 | 8.0 | 7.0 | 9.0 | 13 |
| 30 | 186 | 48 | 236 | 236 | --- | 1020 | 13 | 16 | 7.0 | 7.0 | 9.0 | 13 |
| 31 | 162 | --- | 213 | 260 | --- | 555 | --- | 16 | --- | 7.0 | 9.0 | --- |
| TOTAL | 4689 | 4301 | 4555 | 7332 | 9692 | 300676 | 3832 | 410 | 323.0 | 219.0 | 250.0 | 324.0 |
| MEAN | 151 | 143 | 147 | 237 | 346 | 9699 | 128 | 13.2 | 10.8 | 7.06 | 8.06 | 10.8 |
| MAX | 1110 | 243 | 236 | 413 | 769 | 80700 | 629 | 16 | 17 | 8.0 | 9.0 | 13 |
| MIN | 22 | 45 | 48 | 87 | 70 | 113 | 13 | 11 | 7.0 | 7.0 | 7.0 | 9.0 |
| AC-FT | 9300 | 8530 | 9030 | 14540 | 19220 | 596400 | 7600 | 813 | 641 | 434 | 496 | 643 |

CAL YR 1977 TOTAL 22050.9 MEAN 60.4 MAX 1110 MIN 1.1 AC-FT 43740
WTR YR 1978 TOTAL 336605.0 MEAN 922 MAX 80700 MIN 7.0 AC-FT 667700

## 09519800 GILA RIVER BELOW PAINTED ROCK DAM, AZ

LOCATION.--Lat 33°04'30", long 113°00'50", in SE¼ sec.18, T.4 S., R.7 W., Maricopa County, Hydrologic Unit 15070201, on left bank 0.3 mi (0.5 km) downstream from Painted Rock Dam and 19 mi (31 km) northeast of Sentinel.

DRAINAGE AREA.--50,910 $mi^2$ (131,860 $km^2$), approximately.

PERIOD OF RECORD.--October 1959 to current year.

GAGE.--Water-stage recorder. Datum of gage is 518.69 ft (158.097 m) National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Supplementary gage May 5, 1969, to Mar. 30, 1973, at site 0.3 mi (0.5 km) upstream, at datum 2.87 ft (0.875 m) higher.

REMARKS.--Records fair. Many diversions above station for irrigation. Flow above station regulated by many reservoirs, the largest of which is Painted Rock Reservoir—capacity, 2,491,000 acre-ft (3,070 $hm^3$). (See REMARKS for sta 09518000, Gila River above diversions, at Gillespie Dam.)

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,860 $ft^3/s$ (81.0 $m^3/s$) Apr. 5, 1973, gage height, 10.29 ft (3.136 m); no flow for many days in most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,060 $ft^3/s$ (30.0 $m^3/s$) Mar. 4, gage height, 6.51 ft (1.984 m); no flow Oct. 1 to Mar. 3 and May 15-18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .00 | .00 | .00 | .00 | .00 | .00 | 304 | 280 | 309 | 328 | 300 | 331 |
| 2 | .00 | .00 | .00 | .00 | .00 | .00 | 259 | 265 | 292 | 331 | 322 | 278 |
| 3 | .00 | .00 | .00 | .00 | .00 | .00 | 280 | 65 | 250 | 180 | 334 | 182 |
| 4 | .00 | .00 | .00 | .00 | .00 | 504 | 298 | 330 | 210 | 9.0 | 320 | 94 |
| 5 | .00 | .00 | .00 | .00 | .00 | 360 | 268 | 453 | 270 | 9.0 | 310 | 170 |
| 6 | .00 | .00 | .00 | .00 | .00 | 310 | 259 | 456 | 335 | 9.0 | 304 | 300 |
| 7 | .00 | .00 | .00 | .00 | .00 | 259 | 307 | 325 | 340 | 25 | 337 | 308 |
| 8 | .00 | .00 | .00 | .00 | .00 | 304 | 337 | 415 | 337 | 50 | 344 | 286 |
| 9 | .00 | .00 | .00 | .00 | .00 | 510 | 316 | 472 | 331 | 50 | 376 | 70 |
| 10 | .00 | .00 | .00 | .00 | .00 | 585 | 292 | 452 | 325 | 50 | 334 | 20 |
| 11 | .00 | .00 | .00 | .00 | .00 | 536 | 307 | 468 | 324 | 160 | 328 | 65 |
| 12 | .00 | .00 | .00 | .00 | .00 | 581 | 348 | 507 | 316 | 260 | 316 | 100 |
| 13 | .00 | .00 | .00 | .00 | .00 | 528 | 328 | 440 | 316 | 265 | 240 | 110 |
| 14 | .00 | .00 | .00 | .00 | .00 | 484 | 289 | 200 | 307 | 271 | 280 | 115 |
| 15 | .00 | .00 | .00 | .00 | .00 | 493 | 256 | .00 | 298 | 271 | 340 | 70 |
| 16 | .00 | .00 | .00 | .00 | .00 | 500 | 226 | .00 | 292 | 271 | 348 | 8.0 |
| 17 | .00 | .00 | .00 | .00 | .00 | 456 | 271 | .00 | 286 | 265 | 352 | 8.0 |
| 18 | .00 | .00 | .00 | .00 | .00 | 416 | 313 | .00 | 280 | 265 | 344 | 7.0 |
| 19 | .00 | .00 | .00 | .00 | .00 | 380 | 277 | 40 | 274 | 260 | 298 | 7.0 |
| 20 | .00 | .00 | .00 | .00 | .00 | 497 | 259 | 160 | 304 | 190 | 220 | 6.0 |
| 21 | .00 | .00 | .00 | .00 | .00 | 520 | 320 | 160 | 324 | 60 | 270 | 6.0 |
| 22 | .00 | .00 | .00 | .00 | .00 | 492 | 356 | 180 | 319 | 20 | 331 | 30 |
| 23 | .00 | .00 | .00 | .00 | .00 | 420 | 328 | 250 | 316 | 10 | 340 | 50 |
| 24 | .00 | .00 | .00 | .00 | .00 | 352 | 352 | 270 | 310 | 10 | 360 | 20 |
| 25 | .00 | .00 | .00 | .00 | .00 | 316 | 376 | 290 | 301 | 10 | 344 | 60 |
| 26 | .00 | .00 | .00 | .00 | .00 | 280 | 334 | 307 | 295 | 30 | 313 | 80 |
| 27 | .00 | .00 | .00 | .00 | .00 | 307 | 337 | 292 | 292 | 50 | 230 | 80 |
| 28 | .00 | .00 | .00 | .00 | .00 | 337 | 380 | 270 | 286 | 100 | 260 | 100 |
| 29 | .00 | .00 | .00 | .00 | --- | 450 | 337 | 230 | 286 | 170 | 334 | 190 |
| 30 | .00 | .00 | .00 | .00 | --- | 380 | 289 | 260 | 310 | 90 | 331 | 200 |
| 31 | .00 | --- | .00 | .00 | --- | 290 | --- | 301 | --- | 160 | 331 | --- |
| TOTAL | .00 | .00 | .00 | .00 | .00 | 11847.00 | 9203 | 8138.00 | 9035 | 4229.0 | 9791 | 3351.0 |
| MEAN | .000 | .000 | .000 | .000 | .000 | 382 | 307 | 263 | 301 | 136 | 316 | 112 |
| MAX | .00 | .00 | .00 | .00 | .00 | 585 | 380 | 507 | 340 | 331 | 376 | 331 |
| MIN | .00 | .00 | .00 | .00 | .00 | .00 | 226 | .00 | 210 | 9.0 | 220 | 6.0 |
| AC-FT | .00 | .00 | .00 | .00 | .00 | 23500 | 18250 | 16140 | 17920 | 8390 | 19420 | 6650 |
| (†) | 0 | 0 | 0 | 0 | 0 | 372700 | 339900 | 311300 | 281800 | 260800 | 239900 | 223600 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1977 | TOTAL | 101.20 | MEAN | .28 | MAX | 2.6 | MIN | .00 | AC-FT | 201 | |
| WTR YR 1978 | TOTAL | 55594.00 | MEAN | 152 | MAX | 585 | MIN | .00 | AC-FT | 110300 | |

† Contents, in acre-feet, at end of month (at 2400), furnished by Corps of Engineers since Oct. 1, 1977.

## 09520170 RIO CORNEZ NEAR AJO, AZ

LOCATION.--Lat 32°29'58", long 112°52'50", in SE¼NE¼ sec.4, T.11 S., R.6 W., Pima County, Hydrologic Unit 15070202, on downstream side of bridge on State Highway 85, and 8 mi (13 km) north of Ajo.

DRAINAGE AREA.--243 $mi^2$ (629 $km^2$).

PERIOD OF RECORD.--January 1967 to September 30, 1978 (converted from continuous-record to partial-record station).

GAGE.--Water-stage recorder. Datum of gage is 1,309.45 ft (399.120 m) National Geodetic Vertical Datum of 1929 (State Highway Department bench mark).

REMARKS.--Records poor.

AVERAGE DISCHARGE.--11 years, 4.21 $ft^3/s$ (0.119 $m^3/s$), 3,050 acre-ft/yr (3.76 $hm^3/yr$); median of yearly mean discharges, 3.0 $ft^3/s$ (0.085 $m^3/s$), 2,200 acre-ft/yr (2.7 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,030 $ft^3/s$ (227 $m^3/s$) Sept. 4, 1976, gage height, 10.41 ft (3.173 m), from rating curve extended above 520 $ft^3/s$ (15 $m^3/s$) on the basis of slope-area measurement at gage height 9.70 ft (2.957 m); no flow for most of each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*) and peak discharges above base of 500 $ft^3/s$ (14 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) | Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Oct. 4 | 1800 | 742 | 21.0 | 6.91 | 2.106 | Jan. 15 | 2300 | 916 | 25.9 | 7.06 | 2.152 |
| Oct. 6 | 2400 | *7,220 | 204.5 | 10.14 | 3.091 | Mar. 6 | 0015 | 3,050 | 86.4 | 8.45 | 2.576 |
| Jan. 10 | 2015 | 659 | 18.7 | 6.84 | 2.085 | Mar. 12 | 0930 | 3,230 | 91.5 | 8.54 | 2.603 |

No flow for most of year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 2 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 3 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 4 | 27 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 5 | .00 | .00 | .00 | .00 | .00 | 121 | .00 | .00 | .00 | .00 | .00 | .00 |
| 6 | 530 | .00 | .00 | .00 | .00 | 406 | .00 | .00 | .00 | .00 | .00 | .00 |
| 7 | 726 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 9 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 10 | .00 | .00 | .00 | 41 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 11 | .00 | .00 | .00 | 68 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 12 | .00 | .00 | .00 | .00 | .00 | 681 | .00 | .00 | .00 | .00 | .00 | .00 |
| 13 | .00 | .00 | .00 | .00 | 29 | 1.0 | .00 | .00 | .00 | .00 | .00 | .00 |
| 14 | .00 | .00 | .00 | .00 | 55 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 15 | .00 | .00 | .00 | 65 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 16 | .00 | .00 | .00 | 48 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 17 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 18 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 19 | .00 | .00 | .00 | 12 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 20 | .00 | .00 | .00 | 44 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 21 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 22 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 23 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 24 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 25 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 26 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 27 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 28 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 29 | .00 | .00 | .00 | .00 | --- | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 30 | .00 | .00 | .00 | .00 | --- | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 31 | .00 | --- | .00 | .00 | --- | .00 | --- | .00 | --- | .00 | .00 | --- |
| TOTAL | 1283.00 | .00 | .00 | 278.00 | 84.00 | 1209.00 | .00 | .00 | .00 | .00 | .00 | .00 |
| MEAN | 41.4 | .000 | .000 | 8.97 | 3.00 | 39.0 | .000 | .000 | .000 | .000 | .000 | .000 |
| MAX | 726 | .00 | .00 | 68 | 55 | 681 | .00 | .00 | .00 | .00 | .00 | .00 |
| MIN | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| AC-FT | 2540 | .00 | .00 | 551 | 167 | 2400 | .00 | .00 | .00 | .00 | .00 | .00 |

CAL YR 1977 TOTAL 2120.30 MEAN 5.81 MAX 726 MIN .00 AC-FT 4210
WTR YR 1978 TOTAL 2854.00 MEAN 7.82 MAX 726 MIN .00 AC-FT 5660

## 09520360 GILA RIVER NEAR MOHAWK, AZ

LOCATION.--Lat 32°47'18", long 113°45'48", on section line between sec.25 and 26, T.7 S., R.15 W., Yuma County, Hydrologic Unit 15070201, in center of channel, 70 ft (21 m) upstream from Avenue 51E, and 4.0 mi (6.4 km) north of Mohawk.

DRAINAGE AREA.--55,430 $mi^2$ (143,560 $km^2$), approximately.

PERIOD OF RECORD.--February to April 1966 (published in WSP 1850-C), April 1973 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 300 ft (91.4 m), revised, from topographic map.

REMARKS.--Records fair. Flow regulated by Painted Rock Dam; capacity of reservoir at Painted Rock Dam is 2,492,000 acre-ft or 3,070 $hm^3$, (see REMARKS for sta 09519800). No release flow from Painted Rock Dam reached this station this year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,730 $ft^3/s$ (49.0 $m^3/s$) June 2, 1973, gage height, 7.44 ft (2.268 m); no flow for most of each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 334 $ft^3/s$ (9.46 $m^3/s$) Feb. 14, gage height, 4.87 ft (1.484 m); no flow for most of year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 2 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 3 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 4 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 5 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 6 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 7 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 9 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 10 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 11 | .00 | .00 | .00 | 10 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 12 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 13 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 14 | .00 | .00 | .00 | .00 | 195 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 15 | .00 | .00 | .00 | .00 | 4.8 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 16 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 17 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 18 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 19 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 20 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 21 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 22 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 23 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 24 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 25 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 26 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 27 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 28 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 29 | .00 | .00 | .00 | .00 | --- | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 30 | .00 | .00 | .00 | .00 | --- | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 31 | .00 | --- | .00 | .00 | --- | .00 | --- | .00 | --- | .00 | .00 | --- |
| TOTAL | .00 | .00 | .00 | 10.00 | 199.80 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| MEAN | .000 | .000 | .000 | .32 | 7.14 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| MAX | .00 | .00 | .00 | 10 | 195 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| MIN | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| AC-FT | .00 | .00 | .00 | 20 | 396 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |

CAL YR 1977 TOTAL 75.00 MEAN .21 MAX 39 MIN .00 AC-FT 149
WTR YR 1978 TOTAL 209.80 MEAN .57 MAX 195 MIN .00 AC-FT 416

## 09520500 GILA RIVER NEAR DOME, AZ

LOCATION.--Lat 32°45'39", long 114°25'11", in SW¼ sec.4, T.8 S., R.21 W., Yuma County, Hydrologic Unit 15070201, on right bank 440 ft (134 m) upstream from McPhal bridge on old route of State Highway 95, 3 mi (5 km) west of Dome, and 12 mi (19 km) upstream from mouth.

DRAINAGE AREA.--57,850 $mi^2$ (149,800 $km^2$), approximately—includes 373 $mi^2$ (966 $km^2$) in Aubrey Valley Playa, a closed basin, but excludes all other closed basins.

PERIOD OF RECORD.--January 1903 to current year. Monthly total, maximum, and minimum daily discharges only for January 1903 to December 1904 and January 1906 to July 1929 in WSP 918 or WSP 1313. Published as "at Yuma and Gila City" 1903, as "near Dome." 1904, and as "at Dome (Gila City)" 1905-6. Records for 1907-29 are published in WSP 918 as "at Yuma and at and near Dome." as "at Dome (Gila City)" 1905-6. Records for 1907-29 are published in WSP 918 as "at Yuma and at and near Dome."

REVISED RECORDS.--WSP 918: 1905. WSP 1733: July 1942. WSP 1926: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 148.18 ft (45.165 m) National Geodetic Vertical Datum of 1929. Prior to October 1903 and January 1907 to April 1929, no gage; discharge estimated. October 1903 to December 1906, principal nonrecording gage 4 mi (6 km) upstream at datum 158.37 ft (48.271 m) National Geodetic Vertical Datum of 1929, supplemented by many nonrecording gages at different datums.

REMARKS.--Records fair. Most low flow during this year is waste and drainage return from Wellton-Mohawk Division of Gila Project. Many diversions above station for irrigation. Flow above station regulated by reservoirs at and above Painted Rock Dam; capacity of reservoir at Painted Rock Dam is 2,492,000 acre-ft or 3,070 $hm^2$ (see also REMARKS for sta 09518000). Most of flow for 1966 and 1973 water years was release flow from Painted Rock Dam.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,700 $ft^3/s$ (586 $m^3/s$) Feb. 15, 1932, gage height, 16.75 ft (5.105 m); no flow for part or all of each year since 1903, except for 1961-62, 1968-73, 1975, 1977 water years.
Maximum daily discharge, 200,000 $ft^3/s$ (5,700 $m^3/s$), roughly estimated, Jan. 22, 1916.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 264 $ft^3/s$ (7.48 $m^3/s$) Mar. 1, gage height, 7.47 ft (2.277 m); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .95 | .59 | .38 | .44 | .89 | 127 | .47 | .80 | .08 | .00 | .00 | .00 |
| 2 | .88 | .56 | .44 | .42 | 1.1 | 37 | .43 | .63 | .04 | .00 | .00 | .00 |
| 3 | .85 | .55 | .44 | .40 | 1.3 | 7.2 | .36 | .42 | .00 | .00 | .00 | .00 |
| 4 | .86 | .56 | .50 | .44 | 1.1 | 2.9 | .39 | .25 | .00 | .00 | .00 | .00 |
| 5 | .87 | .55 | .45 | .48 | .95 | 1.8 | .43 | .18 | .00 | .00 | .00 | .00 |
| 6 | 1.2 | .51 | .35 | .47 | .86 | 1.6 | .43 | .11 | .00 | .00 | .00 | .00 |
| 7 | 1.2 | .47 | .33 | .47 | .98 | 1.8 | .42 | .09 | .00 | .00 | .00 | .00 |
| 8 | 1.1 | .44 | .35 | .38 | .96 | 1.5 | .43 | .08 | .00 | .00 | .00 | .00 |
| 9 | 1.0 | .37 | .31 | .36 | .84 | 1.3 | .43 | .13 | .00 | .00 | .00 | .00 |
| 10 | .97 | .34 | .30 | 19 | .77 | 1.2 | .43 | .21 | .00 | .00 | .00 | .00 |
| 11 | .90 | .33 | .30 | 78 | .67 | 1.1 | .43 | .15 | .12 | .00 | .00 | .00 |
| 12 | .77 | .37 | .30 | 8.3 | .60 | 1.1 | .47 | .11 | .15 | .00 | .00 | .00 |
| 13 | .70 | .38 | .30 | 2.4 | .71 | .99 | .47 | .25 | .07 | .00 | .00 | .00 |
| 14 | .77 | .37 | .30 | 1.3 | 4.2 | 1.2 | .47 | .26 | .01 | .00 | .00 | .00 |
| 15 | .82 | .32 | .30 | 1.0 | 2.1 | 1.4 | .51 | .16 | .00 | .00 | .00 | .00 |
| 16 | .84 | .32 | .30 | .89 | 1.2 | 1.6 | .51 | .09 | .00 | .00 | .00 | .00 |
| 17 | .88 | .34 | .30 | .80 | .84 | 1.3 | .45 | .04 | .00 | .00 | .00 | .00 |
| 18 | .89 | .41 | .25 | .69 | .68 | 1.1 | .50 | .03 | .00 | .00 | .00 | .00 |
| 19 | .83 | .40 | .25 | .66 | .59 | 1.0 | .43 | .05 | .00 | .00 | .00 | .00 |
| 20 | .75 | .30 | .25 | .71 | .52 | .92 | .37 | .21 | .00 | .00 | .00 | .00 |
| 21 | .68 | .29 | .27 | .68 | .55 | .74 | .31 | .16 | .00 | .00 | .00 | .00 |
| 22 | .71 | .29 | .31 | .68 | .86 | .64 | .28 | .10 | .00 | .00 | .00 | .00 |
| 23 | .75 | .28 | .36 | .69 | .98 | .95 | .27 | .05 | .00 | .00 | .00 | .00 |
| 24 | .72 | .28 | .34 | .66 | 1.0 | 1.0 | .25 | .03 | .00 | .00 | .00 | .00 |
| 25 | .68 | .32 | .37 | .65 | 1.0 | 1.0 | .24 | .02 | .00 | .00 | .00 | .00 |
| 26 | .70 | .30 | .40 | .71 | .99 | .88 | .21 | .02 | .00 | .00 | .00 | .00 |
| 27 | .65 | .28 | .36 | .73 | .98 | .77 | .20 | .11 | .00 | .00 | .00 | .00 |
| 28 | .64 | .27 | .42 | .78 | 1.3 | .73 | .42 | .13 | .00 | .00 | .00 | .00 |
| 29 | .64 | .24 | .44 | .79 | --- | .71 | .37 | .09 | .00 | .00 | .00 | .00 |
| 30 | .63 | .28 | .44 | .83 | --- | .60 | .63 | .07 | .00 | .00 | .00 | .00 |
| 31 | .60 | --- | .44 | .94 | --- | .48 | --- | .09 | --- | .00 | .00 | --- |
| TOTAL | 25.43 | 11.31 | 10.85 | 125.75 | 29.52 | 203.51 | 12.01 | 5.12 | .47 | .00 | .00 | .00 |
| MEAN | .82 | .38 | .35 | 4.06 | 1.05 | 6.56 | .40 | .17 | .016 | .000 | .000 | .000 |
| MAX | 1.2 | .59 | .50 | 78 | 4.2 | 127 | .63 | .80 | .15 | .00 | .00 | .00 |
| MIN | .60 | .24 | .25 | .36 | .52 | .48 | .20 | .02 | .00 | .00 | .00 | .00 |
| AC-FT | 50 | 22 | 22 | 249 | 59 | 404 | 24 | 10 | .9 | .00 | .00 | .00 |

CAL YR 1977 TOTAL 1551.73 MEAN 4.25 MAX 1050 MIN .01 AC-FT 3080
WTR YR 1978 TOTAL 423.97 MEAN 1.16 MAX 127 MIN .00 AC-FT 841

## 09520700 GILA RIVER NEAR MOUTH, NEAR YUMA, AZ
(National stream-quality accounting network station)

LOCATION.--Lat 32°42'38", long 114°33'06", in NW¼NE¼ sec.30, T.8 S., R.22 W., Yuma County, Hydrologic Unit 15070201, on left bank just upstream from South Gila Pump Outlet Channel No. 1, 0.6 mi (1.0 km) upstream from mouth, and 4 mi (6 km) east of Yuma.

DRAINAGE AREA.--57,950 $mi^2$ (150,090 $km^2$), approximately.

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1975 to current year.

GAGE.--Water-stage recorder and weir. Datum of gage is 122.01 ft (37.189 m) U.S. Bureau of Reclamation datum.

REMARKS.--Records good. Daily discharge is obtained by combining flow past gage with flow for South Gila Pump Outlet Channel No. 1 (see sta 09529360) so as to give total flow of Gila River at mouth.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 757 $ft^3/s$ (21.4 $m^3/s$) Sept. 11, 1977; minimum daily, 41 $ft^3/s$ (1.16 $m^3/s$) Nov. 7, 1975.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 335 $ft^3/s$ (9.49 $m^3/s$) Nov. 27; minimum daily, 44 $ft^3/s$ (1.25 $m^3/s$) Jan. 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 50 | 55 | 80 | 58 | 67 | 163 | 102 | 79 | 82 | 94 | 91 | 92 |
| 2 | 52 | 55 | 83 | 64 | 58 | 166 | 97 | 83 | 78 | 94 | 83 | 87 |
| 3 | 56 | 57 | 84 | 63 | 57 | 122 | 98 | 81 | 78 | 94 | 79 | 76 |
| 4 | 53 | 56 | 82 | 63 | 58 | 119 | 99 | 83 | 79 | 92 | 66 | 75 |
| 5 | 56 | 59 | 83 | 63 | 56 | 115 | 90 | 78 | 77 | 93 | 65 | 75 |
| 6 | 55 | 59 | 82 | 63 | 55 | 108 | 88 | 79 | 79 | 97 | 65 | 73 |
| 7 | 55 | 61 | 86 | 64 | 56 | 100 | 94 | 79 | 81 | 91 | 71 | 73 |
| 8 | 50 | 61 | 83 | 63 | 64 | 117 | 111 | 76 | 76 | 94 | 84 | 75 |
| 9 | 47 | 62 | 82 | 59 | 82 | 116 | 107 | 73 | 74 | 92 | 86 | 70 |
| 10 | 47 | 61 | 81 | 292 | 79 | 111 | 103 | 77 | 74 | 89 | 92 | 69 |
| 11 | 52 | 59 | 85 | 156 | 80 | 115 | 105 | 84 | 73 | 86 | 89 | 67 |
| 12 | 50 | 64 | 83 | 59 | 79 | 111 | 110 | 86 | 72 | 87 | 83 | 53 |
| 13 | 53 | 60 | 81 | 61 | 79 | 110 | 107 | 86 | 73 | 79 | 83 | 62 |
| 14 | 53 | 65 | 79 | 51 | 82 | 111 | 107 | 85 | 75 | 82 | 85 | 60 |
| 15 | 53 | 61 | 81 | 59 | 78 | 105 | 107 | 82 | 68 | 85 | 87 | 67 |
| 16 | 53 | 60 | 81 | 48 | 87 | 100 | 106 | 76 | 67 | 85 | 86 | 71 |
| 17 | 53 | 66 | 80 | 56 | 89 | 95 | 103 | 76 | 66 | 85 | 89 | 75 |
| 18 | 53 | 61 | 81 | 53 | 97 | 94 | 101 | 76 | 67 | 87 | 89 | 70 |
| 19 | 53 | 61 | 79 | 53 | 98 | 97 | 104 | 76 | 66 | 84 | 90 | 67 |
| 20 | 53 | 60 | 80 | 46 | 96 | 94 | 114 | 75 | 66 | 84 | 92 | 66 |
| 21 | 57 | 64 | 83 | 46 | 106 | 94 | 115 | 80 | 66 | 81 | 93 | 71 |
| 22 | 57 | 64 | 82 | 46 | 111 | 92 | 117 | 75 | 67 | 83 | 93 | 72 |
| 23 | 56 | 70 | 79 | 50 | 110 | 89 | 113 | 75 | 69 | 83 | 92 | 61 |
| 24 | 54 | 60 | 79 | 51 | 114 | 89 | 113 | 76 | 68 | 84 | 90 | 49 |
| 25 | 53 | 64 | 79 | 44 | 110 | 93 | 114 | 77 | 65 | 88 | 88 | 50 |
| 26 | 52 | 254 | 80 | 46 | 114 | 90 | 114 | 77 | 65 | 92 | 85 | 48 |
| 27 | 52 | 335 | 73 | 56 | 105 | 89 | 117 | 78 | 66 | 90 | 84 | 45 |
| 28 | 52 | 101 | 56 | 82 | 112 | 89 | 114 | 76 | 68 | 88 | 84 | 52 |
| 29 | 50 | 79 | 56 | 60 | --- | 90 | 104 | 76 | 60 | 89 | 86 | 56 |
| 30 | 51 | 77 | 56 | 56 | --- | 91 | 95 | 79 | 78 | 88 | 86 | 52 |
| 31 | 51 | --- | 56 | 69 | --- | 93 | --- | 78 | --- | 87 | 81 | --- |
| TOTAL | 1632 | 2371 | 2415 | 2100 | 2379 | 3268 | 3169 | 2437 | 2143 | 2727 | 2617 | 1979 |
| MEAN | 52.6 | 79.0 | 77.9 | 67.7 | 85.0 | 105 | 106 | 78.6 | 71.4 | 88.0 | 84.4 | 66.0 |
| MAX | 57 | 335 | 86 | 292 | 114 | 166 | 117 | 86 | 82 | 97 | 93 | 92 |
| MIN | 47 | 55 | 56 | 44 | 55 | 89 | 88 | 73 | 60 | 79 | 65 | 45 |
| AC-FT | 3240 | 4700 | 4790 | 4170 | 4720 | 6480 | 6290 | 4830 | 4250 | 5410 | 5190 | 3930 |

CAL YR 1977 TOTAL 33817 MEAN 92.6 MAX 757 MIN 47 AC-FT 67080
WTR YR 1978 TOTAL 29237 MEAN 80.1 MAX 335 MIN 44 AC-FT 57990

09520700 GILA RIVER NEAR MOUTH, NEAR YUMA, AZ--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1968 to current year.

REMARKS.--Unpublished chemical analyses (continuing record) for water years 1961-68 available from district office in Tucson, Ariz.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | TUR-BID-ITY (JTU) | TUR-BID-ITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) | COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) | STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 03... | 1355 | 54 | 3220 | -- | 25.0 | -- | -- | -- | -- | -- | -- | -- |
| 05... | 1010 | 55 | 3370 | 7.7 | 24.0 | 4 | -- | 8.1 | K43 | 680 | 680 | 430 |
| 11... | 1405 | 51 | 3280 | -- | 25.5 | -- | -- | -- | -- | -- | -- | -- |
| 17... | 1405 | 42 | 3250 | 7.7 | 24.5 | -- | -- | -- | -- | -- | 640 | 390 |
| 25... | 1425 | 57 | 3250 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 31... | 1200 | 50 | 3200 | -- | 23.5 | -- | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | | | | | | | |
| 07... | 1400 | 58 | 3190 | -- | 23.0 | -- | -- | -- | -- | -- | -- | -- |
| 09... | 1100 | 58 | 3140 | 8.0 | 22.5 | 3 | -- | 8.2 | 56 | 560 | 670 | 420 |
| 14... | 1230 | 65 | 3090 | -- | 21.0 | -- | -- | -- | -- | -- | -- | -- |
| 21... | 1410 | 60 | 2960 | 7.8 | 22.0 | -- | -- | -- | -- | -- | 540 | 310 |
| 28... | 1120 | 97 | 2430 | -- | 21.0 | -- | -- | -- | -- | -- | -- | -- |
| DEC | | | | | | | | | | | | |
| 05... | 1410 | 86 | 3160 | -- | 23.0 | -- | -- | -- | -- | -- | -- | -- |
| 07... | 1045 | 90 | 3070 | 7.7 | 20.5 | 5 | -- | 8.2 | 380 | 640 | 620 | 390 |
| 12... | 1140 | 84 | 3190 | -- | 21.0 | -- | -- | -- | -- | -- | -- | -- |
| 19... | 1425 | 81 | 3220 | 7.7 | 21.5 | -- | -- | -- | -- | -- | 630 | 400 |
| JAN | | | | | | | | | | | | |
| 03... | 1210 | 64 | 3320 | -- | 20.5 | -- | -- | -- | -- | -- | -- | -- |
| 09... | 1210 | 63 | 3320 | -- | 21.0 | -- | -- | -- | -- | -- | -- | -- |
| 11... | 1130 | 211 | 4540 | 7.7 | 14.0 | 60 | -- | 9.2 | K3500 | 5900 | 1100 | 870 |
| 16... | 1530 | 50 | 3000 | -- | 21.5 | -- | -- | -- | -- | -- | -- | -- |
| 22... | 1150 | 487 | 945 | 7.6 | -- | -- | -- | -- | -- | -- | 180 | 53 |
| 23... | 1500 | 45 | 3040 | 7.8 | 21.5 | -- | -- | -- | -- | -- | 610 | 380 |
| 30... | 1120 | 49 | 3130 | -- | 21.5 | -- | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | | | | | | | |
| 06... | 1425 | 56 | 3020 | -- | 23.0 | -- | -- | -- | -- | -- | -- | -- |
| 08... | 1030 | 58 | 3010 | 7.7 | 21.5 | 2 | -- | 8.6 | 70 | 230 | 580 | 330 |
| 13... | 1355 | 79 | 3200 | -- | 22.0 | -- | -- | -- | -- | -- | -- | -- |
| 21... | 1455 | 112 | 3500 | 7.9 | 23.0 | -- | -- | -- | -- | -- | 710 | 460 |
| 27... | 1405 | 97 | 3530 | -- | 23.0 | -- | -- | -- | -- | -- | -- | -- |
| MAR | | | | | | | | | | | | |
| 06... | 1330 | 112 | 3470 | -- | 23.5 | -- | -- | -- | -- | -- | -- | -- |
| 08... | 1100 | 115 | 3540 | 7.8 | 22.0 | 2 | -- | 8.3 | 93 | 57 | 700 | 450 |
| 13... | 1130 | 110 | 3480 | -- | 21.5 | -- | -- | -- | -- | -- | -- | -- |
| 20... | 1055 | 93 | 3600 | 7.9 | 22.0 | -- | -- | -- | -- | -- | 710 | 450 |
| 27... | 1405 | 72 | 3650 | -- | 24.5 | -- | -- | -- | -- | -- | -- | -- |
| APR | | | | | | | | | | | | |
| 03... | 1420 | 100 | 3640 | -- | 24.5 | -- | -- | -- | -- | -- | -- | -- |
| 10... | 1125 | 108 | 3680 | -- | 24.0 | -- | -- | -- | -- | -- | -- | -- |
| 12... | 1100 | 111 | 3590 | 8.0 | 24.0 | 3 | -- | 7.8 | 36 | 74 | 690 | 430 |
| 17... | 1350 | 109 | 3740 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 24... | 0845 | 117 | 3680 | 7.7 | 21.0 | -- | -- | -- | -- | -- | 730 | 460 |
| MAY | | | | | | | | | | | | |
| 01... | 1420 | 79 | 3190 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 08... | 1450 | 78 | 3150 | -- | 25.5 | -- | -- | -- | -- | -- | -- | -- |
| 10... | 1030 | 87 | 3010 | 8.0 | 24.0 | 3 | -- | 8.2 | 110 | 200 | 580 | 340 |
| 15... | 1355 | 82 | 3100 | -- | 26.5 | -- | -- | -- | -- | -- | -- | -- |
| 22... | 1415 | 72 | 3150 | 7.7 | 27.5 | -- | -- | -- | -- | -- | 590 | 350 |
| 30... | 1445 | 77 | 3120 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUN | | | | | | | | | | | | |
| 05... | 1435 | 79 | 3170 | -- | 26.0 | -- | -- | -- | -- | -- | -- | -- |
| 12... | 1125 | 70 | 3170 | -- | 25.0 | -- | -- | -- | -- | -- | -- | -- |
| 14... | 1015 | 73 | 3060 | 7.8 | 24.0 | -- | 1.4 | 7.6 | 190 | 160 | 590 | -- |
| 19... | 1400 | 66 | 3260 | -- | 28.0 | -- | -- | -- | -- | -- | -- | -- |
| 26... | 1405 | 63 | 3240 | 7.7 | 26.0 | -- | -- | -- | -- | -- | 640 | 400 |
| JUL | | | | | | | | | | | | |
| 03... | 1420 | 91 | 3710 | -- | 27.5 | -- | -- | -- | -- | -- | -- | -- |
| 10... | 1115 | 87 | 3760 | -- | 25.5 | -- | -- | -- | -- | -- | -- | -- |
| 12... | 1100 | 89 | 3670 | 8.0 | 25.0 | -- | 1.5 | 8.3 | 290 | 120 | 720 | -- |
| 17... | 1435 | 89 | 3720 | -- | 27.0 | -- | -- | -- | -- | -- | -- | -- |
| 24... | 1445 | 82 | 3810 | 7.8 | 26.5 | -- | -- | -- | -- | -- | 770 | 540 |
| 31... | 1400 | 91 | 3770 | -- | 28.0 | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | | | | |
| 07... | 1410 | 66 | 4020 | -- | 27.0 | -- | -- | -- | -- | -- | -- | -- |
| 09... | 1115 | 80 | 3760 | 7.7 | 25.0 | -- | 1.0 | 8.2 | 180 | 86 | 740 | 490 |
| 14... | 1520 | 87 | 3730 | -- | 27.5 | -- | -- | -- | -- | -- | -- | -- |
| 21... | 1135 | 92 | 3570 | 7.8 | 26.5 | -- | -- | -- | -- | -- | 680 | 440 |
| 28... | 1335 | 85 | 3740 | -- | 26.0 | -- | -- | -- | -- | -- | -- | -- |
| SEP | | | | | | | | | | | | |
| 05... | 1510 | 52 | 2960 | -- | 28.0 | -- | -- | -- | -- | -- | -- | -- |
| 11... | 1105 | 67 | 3040 | -- | 23.5 | -- | -- | -- | -- | -- | -- | -- |
| 13... | 1000 | 65 | 3550 | 7.8 | 23.5 | -- | 2.3 | 9.4 | 440 | 140 | 680 | -- |
| 18... | 1445 | 46 | 3080 | -- | 25.0 | -- | -- | -- | -- | -- | -- | -- |
| 25... | 1435 | 53 | 3050 | 7.9 | 25.5 | -- | -- | -- | -- | -- | 570 | 330 |

K Based on non-ideal colony count.

09520700 GILA RIVER NEAR MOUTH, NEAR YUMA, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | BICAR-BONATE (MG/L AS HCO3) | CAR-BONATE (MG/L AS CO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 03... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 05... | 160 | 67 | 500 | 8.4 | 7.3 | 300 | 0 | 510 | 670 | 1.0 | 23 | 2140 |
| 11... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 17... | 150 | 64 | 460 | 7.9 | 6.9 | 300 | 0 | 500 | 620 | 1.1 | 28 | 2010 |
| 25... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 31... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | | | | | | | |
| 07... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 09... | 160 | 65 | 460 | 7.8 | 6.9 | 300 | 0 | 490 | 580 | 1.0 | 24 | 1980 |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 21... | 130 | 53 | 460 | 8.6 | 6.2 | 290 | 0 | 480 | 550 | 1.0 | 24 | 1870 |
| 28... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| DEC | | | | | | | | | | | | |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 07... | 150 | 60 | 430 | 7.5 | 7.3 | 280 | 0 | 510 | 610 | .7 | 22 | 1960 |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 19... | 150 | 63 | 480 | 8.3 | 7.3 | 280 | 0 | 480 | 650 | 1.1 | 25 | 2000 |
| JAN | | | | | | | | | | | | |
| 03... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 09... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 11... | 240 | 110 | 600 | 8.1 | 11 | 220 | 0 | 530 | 1200 | .5 | 12 | 2880 |
| 16... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 22... | 49 | 15 | 120 | 3.8 | 7.0 | 160 | 0 | 110 | 140 | .4 | 5.8 | 543 |
| 23... | 150 | 58 | 440 | 7.7 | 6.7 | 290 | 0 | 540 | 560 | 1.0 | 23 | 1920 |
| 30... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | | | | | | | |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 08... | 140 | 55 | 430 | 7.8 | 7.2 | 300 | 0 | 510 | 530 | 1.2 | 24 | 1930 |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 21... | 170 | 69 | 480 | 7.8 | 7.6 | 300 | 0 | 460 | 730 | .9 | 25 | 2150 |
| 27... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MAR | | | | | | | | | | | | |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 08... | 160 | 74 | 510 | 8.4 | 8.6 | 310 | 0 | 470 | 780 | .9 | 23 | 2190 |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 20... | 160 | 75 | 520 | 8.5 | 7.9 | 310 | 0 | 470 | 740 | .8 | 20 | 2220 |
| 27... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| APR | | | | | | | | | | | | |
| 03... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 10... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 12... | 160 | 71 | 520 | 8.6 | 9.1 | 320 | 0 | 510 | 720 | .8 | 23 | 2190 |
| 17... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 24... | 170 | 74 | 540 | 8.7 | 8.1 | 330 | 0 | 520 | 800 | .9 | 25 | 2260 |
| MAY | | | | | | | | | | | | |
| 01... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 08... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 10... | 140 | 56 | 480 | 8.7 | 8.3 | 290 | 0 | 420 | 640 | 1.0 | 24 | 1860 |
| 15... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 22... | 140 | 59 | 460 | 8.2 | 7.4 | 290 | 0 | 440 | 650 | 1.0 | 24 | 1940 |
| 30... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUN | | | | | | | | | | | | |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | 140 | 59 | 450 | 8.0 | 7.5 | -- | -- | 450 | 600 | 1.0 | 21 | 1890 |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 26... | 160 | 58 | 480 | 8.3 | 7.1 | 290 | 0 | 440 | 650 | 1.0 | 20 | 2000 |
| JUL | | | | | | | | | | | | |
| 03... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 10... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 12... | 170 | 72 | 530 | 8.6 | 8.2 | -- | -- | 540 | 780 | .9 | 25 | 2260 |
| 17... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 24... | 180 | 79 | 540 | 8.4 | 8.5 | 290 | 0 | 460 | 810 | .9 | 24 | 2370 |
| 31... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | | | | |
| 07... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 09... | 170 | 76 | 540 | 8.7 | 8.5 | -- | -- | 480 | 640 | .9 | 23 | 2240 |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 21... | 160 | 69 | 500 | 8.3 | 7.6 | 300 | 0 | 480 | 730 | 1.0 | 27 | 2190 |
| 28... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| SEP | | | | | | | | | | | | |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 11... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 13... | 160 | 68 | 510 | 8.5 | 8.2 | -- | -- | 470 | 780 | .8 | 23 | 2230 |
| 18... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 25... | 140 | 54 | 460 | 8.4 | 6.2 | 290 | 0 | 470 | 570 | 1.0 | 24 | 1840 |

09520700 GILA RIVER NEAR MOUTH, NEAR YUMA, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER AC-FT) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) | NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO-GEN, TOTAL (MG/L AS N) | PHOS-PHORUS, TOTAL (MG/L AS P) | PHOS-PHORUS, DIS-SOLVED (MG/L AS P) | PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 03... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 05... | 2090 | 2.91 | .70 | .84 | .12 | -- | -- | -- | .05 | .03 | .04 |
| 11... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 17... | 1980 | 2.73 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 25... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 31... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | | | | | | |
| 07... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 09... | 1940 | 2.69 | .78 | .96 | .31 | -- | -- | -- | .04 | .03 | .00 |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 21... | 1850 | 2.54 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 28... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| DEC | | | | | | | | | | | |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 07... | 1930 | 2.67 | .62 | .64 | .18 | -- | -- | -- | .04 | .07 | .01 |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 19... | 2000 | 2.72 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JAN | | | | | | | | | | | |
| 03... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 09... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 11... | 2810 | 3.92 | .64 | .63 | .21 | -- | -- | -- | .21 | .05 | .04 |
| 16... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 22... | 527 | .74 | -- | .13 | -- | -- | -- | -- | -- | -- | -- |
| 23... | 1920 | 2.61 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 30... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | | | | | | |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 08... | 1850 | 2.62 | 1.2 | 1.3 | .23 | .46 | .69 | 1.9 | .05 | .04 | .04 |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 21... | 2090 | 2.92 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 27... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MAR | | | | | | | | | | | |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 08... | 2180 | 2.98 | .64 | .73 | .24 | .33 | .57 | 1.2 | .06 | .05 | .00 |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 20... | 2150 | 3.02 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 27... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| APR | | | | | | | | | | | |
| 03... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 10... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 12... | 2180 | 2.98 | .90 | .90 | .17 | .47 | .64 | 1.5 | .05 | .04 | .04 |
| 17... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 24... | 2300 | 3.07 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MAY | | | | | | | | | | | |
| 01... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 08... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 10... | 1920 | 2.53 | .67 | .73 | .19 | .40 | .59 | 1.3 | .05 | .03 | .01 |
| 15... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 22... | 1930 | 2.64 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 30... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUN | | | | | | | | | | | |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | -- | 2.57 | .88 | .87 | .18 | .66 | .84 | 1.7 | .03 | .04 | .04 |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 26... | 1960 | 2.72 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | | | |
| 03... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 10... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 12... | -- | 3.07 | 1.2 | 1.2 | .07 | .53 | .60 | 1.8 | .03 | .03 | .02 |
| 17... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 24... | 2250 | 3.22 | -- | 1.1 | -- | -- | -- | -- | -- | -- | -- |
| 31... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | | | |
| 07... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 09... | 2290 | 3.05 | .81 | -- | .16 | .54 | .70 | 1.5 | .03 | .02 | -- |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 21... | 2130 | 2.98 | -- | 1.0 | -- | -- | -- | -- | -- | -- | -- |
| 28... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| SEP | | | | | | | | | | | |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 11... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 13... | -- | 3.03 | 1.1 | 1.1 | .28 | .82 | 1.1 | 2.2 | .07 | .05 | .02 |
| 18... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 25... | 1880 | 2.50 | -- | 1.9 | -- | -- | -- | -- | -- | -- | -- |

09520700 GILA RIVER NEAR MOUTH, NEAR YUMA, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | IRON, DIS-SOLVED (UG/L AS FE) | LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) | LEAD, DIS-SOLVED (UG/L AS PB) | MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) | MANGA-NESE, DIS-SOLVED (UG/L AS MN) | MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) | MERCURY DIS-SOLVED (UG/L AS HG) | SELE-NIUM, TOTAL (UG/L AS SE) | SELE-NIUM, DIS-SOLVED (UG/L AS SE) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 05... | -- | -- | -- | -- | -- | .0 | -- | -- | -- |
| 17... | 10 | -- | -- | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | | | | |
| 09... | 10 | <100 | 24 | 1000 | 1100 | .0 | .0 | 10 | 14 |
| 21... | 0 | -- | -- | -- | -- | -- | -- | -- | -- |
| DEC | | | | | | | | | |
| 19... | 10 | -- | -- | -- | -- | -- | -- | -- | -- |
| JAN | | | | | | | | | |
| 22... | 40 | -- | -- | -- | -- | -- | -- | -- | -- |
| 23... | 10 | -- | -- | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | | | | |
| 08... | 10 | 8 | 0 | 830 | 810 | .1 | .0 | 15 | 13 |
| 21... | 10 | -- | -- | -- | -- | -- | -- | -- | -- |
| MAR | | | | | | | | | |
| 20... | 10 | -- | -- | -- | -- | -- | -- | -- | -- |
| APR | | | | | | | | | |
| 24... | 10 | -- | -- | -- | -- | -- | -- | -- | -- |
| MAY | | | | | | | | | |
| 10... | 10 | 6 | 4 | 1400 | 1200 | .0 | .0 | 6 | 6 |
| 22... | 0 | -- | -- | -- | -- | -- | -- | -- | -- |
| JUN | | | | | | | | | |
| 26... | 10 | -- | -- | -- | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | |
| 24... | 10 | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | |
| 09... | 20 | 7 | 2 | 620 | 600 | .1 | .1 | 7 | 7 |
| 21... | 0 | -- | -- | -- | -- | -- | -- | -- | -- |
| SEP | | | | | | | | | |
| 25... | 20 | -- | -- | -- | -- | -- | -- | -- | -- |

| DATE | ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) | ZINC, DIS-SOLVED (UG/L AS ZN) | CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) | CARBON, ORGANIC DIS-SOLVED (MG/L AS C) | ARSENIC TOTAL (UG/L AS AS) | ARSENIC DIS-SOLVED (UG/L AS AS) | BORON, TOTAL RECOV-ERABLE (UG/L AS B) | BORON, DIS-SOLVED (UG/L AS B) | CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 17... | -- | -- | -- | -- | -- | -- | -- | 670 | -- |
| NOV | | | | | | | | | |
| 09... | 10 | 20 | -- | -- | 12 | 10 | 660 | 650 | 10 |
| 21... | -- | -- | -- | -- | -- | -- | -- | 650 | -- |
| DEC | | | | | | | | | |
| 19... | -- | -- | -- | -- | -- | -- | -- | 690 | -- |
| JAN | | | | | | | | | |
| 22... | -- | -- | -- | -- | -- | -- | -- | 250 | -- |
| 23... | -- | -- | -- | -- | -- | -- | -- | 650 | -- |
| FEB | | | | | | | | | |
| 08... | 30 | 20 | -- | 3.4 | 11 | 11 | 710 | 670 | 1 |
| 21... | -- | -- | -- | -- | -- | -- | -- | 680 | -- |
| MAR | | | | | | | | | |
| 20... | -- | -- | -- | -- | -- | -- | -- | 670 | -- |
| APR | | | | | | | | | |
| 24... | -- | -- | -- | -- | -- | -- | -- | 750 | -- |
| MAY | | | | | | | | | |
| 10... | 30 | 20 | 1.3 | 1.8 | 13 | 10 | 710 | 690 | 2 |
| 22... | -- | -- | -- | -- | -- | -- | -- | 670 | -- |
| JUN | | | | | | | | | |
| 26... | -- | -- | -- | -- | -- | -- | -- | 690 | -- |
| JUL | | | | | | | | | |
| 24... | -- | -- | -- | -- | -- | -- | -- | 740 | -- |
| AUG | | | | | | | | | |
| 09... | 30 | 20 | .2 | 3.6 | 9 | 9 | -- | -- | 1 |
| 21... | -- | -- | -- | -- | -- | -- | -- | 740 | -- |
| SEP | | | | | | | | | |
| 25... | -- | -- | -- | -- | -- | -- | -- | 710 | -- |

< Actual value is known to be less than value shown.

09520700 GILA RIVER NEAR MOUTH, NEAR YUMA, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | CADMIUM DIS-SOLVED (UG/L AS CD) | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) | CHRO-MIUM, DIS-SOLVED (UG/L AS CR) | COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) | COBALT, DIS-SOLVED (UG/L AS CO) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) | COPPER, DIS-SOLVED (UG/L AS CU) | IRON, TOTAL RECOV-ERABLE (UG/L AS FE) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- |
| 17... | -- | -- | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | | | |
| 09... | 3 | 20 | 16 | <50 | 0 | 10 | 5 | 230 |
| 21... | -- | -- | -- | -- | -- | -- | -- | -- |
| DEC | | | | | | | | |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- |
| JAN | | | | | | | | |
| 22... | -- | -- | -- | -- | -- | -- | -- | -- |
| 23... | -- | -- | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | | | |
| 08... | 0 | 0 | 10 | 0 | 0 | 7 | 6 | 200 |
| 21... | -- | -- | -- | -- | -- | -- | -- | -- |
| MAR | | | | | | | | |
| 20... | -- | -- | -- | -- | -- | -- | -- | -- |
| APR | | | | | | | | |
| 24... | -- | -- | -- | -- | -- | -- | -- | -- |
| MAY | | | | | | | | |
| 10... | 1 | 30 | 10 | 3 | 2 | 10 | 1 | 370 |
| 22... | -- | -- | -- | -- | -- | -- | -- | -- |
| JUN | | | | | | | | |
| 26... | -- | -- | -- | -- | -- | -- | -- | -- |
| JUL | | | | | | | | |
| 24... | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | |
| 09... | 0 | 0 | 10 | 2 | 0 | 9 | 3 | 70 |
| 21... | -- | -- | -- | -- | -- | -- | -- | -- |
| SEP | | | | | | | | |
| 25... | -- | -- | -- | -- | -- | -- | -- | -- |

| DATE | TIME | PHYTO-PLANK-TON, TOTAL (CELLS PER ML) | PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M | PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M | SEDI-MENT, SUS-PENDED (MG/L) | SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) | SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM |
|---|---|---|---|---|---|---|---|
| NOV | | | | | | | |
| 09... | 1100 | 280 | 15.8 | 12.1 | 23 | 3.6 | 20 |
| FEB | | | | | | | |
| 08... | 1030 | 1600 | -- | -- | 14 | 2.2 | 33 |
| MAY | | | | | | | |
| 10... | 1030 | 1500 | -- | -- | 9 | 2.1 | 49 |
| JUN | | | | | | | |
| 14... | 1015 | 1100 | -- | -- | 6 | 1.2 | 56 |
| JUL | | | | | | | |
| 12... | 1100 | 1300 | -- | -- | -- | -- | -- |
| AUG | | | | | | | |
| 09... | 1115 | -- | 20.2 | 17.9 | -- | -- | -- |
| SEP | | | | | | | |
| 13... | 1000 | 1700 | -- | -- | 8 | 1.4 | 50 |

< Actual value is known to be less than value shown.

09520700 GILA RIVER NEAR MOUTH, NEAR YUMA, AZ--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

PHYTOPLANKTON

| DATE | NOV 9,77 | | FEB 8,78 | | MAY 10,78 | | JUN 14,78 | |
|---|---|---|---|---|---|---|---|---|
| TIME | 1100 | | 1030 | | 1030 | | 1015 | |
| TOTAL CELLS/ML | 280 | | 1600 | | 1500 | | 1100 | |
| DIVERSITY: DIVISION | 1.8 | | 0.7 | | 0.7 | | 0.4 | |
| .CLASS | 1.8 | | 0.7 | | 0.7 | | 0.4 | |
| ..ORDER | 2.3 | | 1.4 | | 1.5 | | 1.3 | |
| ...FAMILY | 2.8 | | 1.5 | | 2.1 | | 2.4 | |
| ....GENUS | 2.8 | | 1.5 | | 2.2 | | 2.6 | |
| ORGANISM | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT |
| CHLOROPHYTA (GREEN ALGAE) | | | | | | | | |
| .CHLOROPHYCEAE | | | | | | | | |
| ..CHLOROCOCCALES | | | | | | | | |
| ...CHARACIACEAE | | | | | | | | |
| ....SCHROEDERIA | 5 | 2 | -- | - | -- | - | -- | - |
| ...OOCYSTACEAE | | | | | | | | |
| ....ANKISTRODESMUS | -- | - | -- | - | -- | - | 29 | 3 |
| ...SCENEDESMACEAE | | | | | | | | |
| ....SCENEDESMUS | 9 | 3 | 28 | 2 | 290# | 19 | -- | - |
| ..TETRASPORALES | | | | | | | | |
| ...PALMELLACEAE | | | | | | | | |
| ....SPHAERUCYSTIS | -- | - | 220 | 14 | -- | - | -- | - |
| ..VOLVOCALES | | | | | | | | |
| ...CHLAMYDOMONADACEAE | | | | | | | | |
| ....CHLAMYDOMONAS | 9 | 3 | 69 | 4 | -- | - | -- | - |
| CHRYSOPHYTA | | | | | | | | |
| .BACILLARIOPHYCEAE | | | | | | | | |
| ..CENTRALES | | | | | | | | |
| ...CHAETOCERACEAE | | | | | | | | |
| ....CHAETOCEROS | -- | - | 14 | 1 | -- | - | -- | - |
| ...COSCINODISCACEAE | | | | | | | | |
| ....CYCLOTELLA | 52# | 19 | 1100# | 70 | 580# | 38 | -- | - |
| ....MELOSIRA | -- | - | -- | - | -- | - | 380# | 36 |
| ....STEPHANODISCUS | -- | - | -- | - | -- | - | -- | - |
| ..PENNALES | | | | | | | | |
| ...ACHNANTHACEAE | | | | | | | | |
| ....ACHNANTHES | -- | - | 110 | 7 | -- | - | -- | - |
| ....COCCONEIS | 14 | 5 | -- | - | -- | - | 73 | 7 |
| ...CYMBELLACEAE | | | | | | | | |
| ....AMPHORA | 14 | 5 | -- | - | 72 | 5 | -- | - |
| ....CYMBELLA | -- | - | 14 | 1 | -- | - | 73 | 7 |
| ...FRAGILARIACEAE | | | | | | | | |
| ....SYNEDRA | 5 | 2 | -- | - | -- | - | -- | - |
| ...GOMPHONEMATACEAE | | | | | | | | |
| ....GOMPHONEMA | -- | - | -- | - | -- | - | 44 | 4 |
| ...NAVICULACEAE | | | | | | | | |
| ....CALONEIS | -- | - | -- | - | 72 | 5 | -- | - |
| ....NAVICULA | 24 | 8 | 14 | 1 | -- | - | 230# | 22 |
| ....NEIDIUM | -- | - | -- | - | 140 | 10 | -- | - |
| ....PINNULARIA | -- | - | -- | - | -- | - | 59 | 5 |
| ...NITZSCHIACEAE | | | | | | | | |
| ....NITZSCHIA | 9 | 3 | -- | - | 360# | 24 | 150 | 14 |
| ...UNKNOWN 21603020702000 | -- | - | -- | - | -- | - | -- | - |
| CRYPTOPHYTA (CRYPTOMONADS) | | | | | | | | |
| .CRYPTOPHYCEAE | | | | | | | | |
| ..CRYPTOMONIDALES | | | | | | | | |
| ...CRYPTOCHRYSIDACEAE | | | | | | | | |
| ....CHROOMONAS | -- | - | -- | - | -- | - | -- | - |
| ...CRYPTOMONODACEAE | | | | | | | | |
| ....CRYPTOMONAS | -- | - | -- | - | -- | - | -- | - |
| CYANOPHYTA (BLUE-GREEN ALGAE) | | | | | | | | |
| .CYANOPHYCEAE | | | | | | | | |
| ..CHROOCOCCALES | | | | | | | | |
| ...CHROOCOCCACEAE | | | | | | | | |
| ....ANACYSTIS | 95# | 34 | -- | - | -- | - | -- | - |
| ..HORMOGONALES | | | | | | | | |
| ...OSCILLATORIACEAE | | | | | | | | |
| ....OSCILLATORIA | -- | - | -- | - | -- | - | -- | - |
| EUGLENOPHYTA (EUGLENOIDS) | | | | | | | | |
| .EUGLENOPHYCEAE | | | | | | | | |
| ..EUGLENALES | | | | | | | | |
| ...EUGLENACEAE | | | | | | | | |
| ....EUGLENA | 43# | 15 | -- | - | -- | - | 29 | 3 |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

09520700 GILA RIVER NEAR MOUTH, NEAR YUMA, AZ--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

PHYTOPLANKTON

| DATE | JUL 12,78 | AUG 9,78 | SEP 13,78 |
|---|---|---|---|
| TIME | 1100 | 1115 | 1000 |
| TOTAL CELLS/ML | 1300 | 300 | 1700 |
| DIVERSITY: DIVISION | 0.3 | 1.1 | 1.3 |
| .CLASS | 0.3 | 1.1 | 1.3 |
| ..ORDER | 1.0 | 1.8 | 1.4 |
| ...FAMILY | 2.3 | 2.7 | 2.0 |
| ....GENUS | 2.5 | 0.0 | 2.0 |

| ORGANISM | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT |
|---|---|---|---|---|---|---|
| CHLOROPHYTA (GREEN ALGAE) | | | | | | |
| .CHLOROPHYCEAE | | | | | | |
| ..CHLOROCOCCALES | | | | | | |
| ...CHARACIACEAE | | | | | | |
| ....SCHROEDERIA | -- | - | -- | - | -- | - |
| ...UOCYSTACEAE | | | | | | |
| ....ANKISTRODESMUS | -- | - | -- | - | -- | - |
| ...SCENEDESMACEAE | | | | | | |
| ....SCENEDESMUS | -- | - | 18 | 6 | -- | - |
| ..TETRASPORALES | | | | | | |
| ...PALMELLACEAE | | | | | | |
| ....SPHAEROCYSTIS | -- | - | -- | - | -- | - |
| ..VOLVOCALES | | | | | | |
| ...CHLAMYDOMONADACEAE | | | | | | |
| ....CHLAMYDOMONAS | 67 | 5 | -- | - | 22 | 1 |
| CHRYSUPHYTA | | | | | | |
| .BACILLARIOPHYCEAE | | | | | | |
| ..CENTRALES | | | | | | |
| ...CHAETOCERACEAE | | | | | | |
| ....CHAETOCEROS | -- | - | -- | - | -- | - |
| ...COSCINUDISCACEAE | | | | | | |
| ....CYCLOTELLA | 290# | 22 | 89# | 29 | 43 | 3 |
| ....MELOSIRA | -- | - | 4 | 1 | -- | - |
| ....STEPHANUDISCUS | -- | - | 4 | 1 | -- | - |
| ..PENNALES | | | | | | |
| ...ACHNANTHACEAE | | | | | | |
| ....ACHNANTHES | -- | - | 13 | 4 | -- | - |
| ....COCCONEIS | -- | - | -- | - | 43 | 3 |
| ...CYMBELLACEAE | | | | | | |
| ....AMPHORA | -- | - | 20 | 7 | 590# | 36 |
| ....CYMBELLA | 240# | 19 | 9 | 3 | -- | - |
| ...FRAGILARIACEAE | | | | | | |
| ....SYNEDRA | -- | - | -- | - | -- | - |
| ...GOMPHONEMATACEAE | | | | | | |
| ....GOMPHONEMA | 44 | 3 | 13 | 4 | 65 | 4 |
| ...NAVICULACEAE | | | | | | |
| ....CALONEIS | -- | - | -- | - | -- | - |
| ....NAVICULA | 380# | 29 | 53# | 18 | 87 | 5 |
| ....NEIDIUM | -- | - | -- | - | -- | - |
| ....PINNULARIA | 44 | 3 | -- | - | -- | - |
| ...NITZSCHIACEAE | | | | | | |
| ....NITZSCHIA | 220# | 17 | 16 | 5 | -- | - |
| ...UNKNOWN 216030207020000 | -- | - | 7 | 2 | -- | - |
| CRYPTOPHYTA (CRYPTOMONADS) | | | | | | |
| .CRYPTOPHYCEAE | | | | | | |
| ..CRYPTOMONIDALES | | | | | | |
| ...CRYPTOCHRYSIDACEAE | | | | | | |
| ....CHROOMONAS | -- | - | -- | - | 22 | 1 |
| ...CRYPTOMONODACEAE | | | | | | |
| ....CRYPTOMONAS | -- | - | 2 | 1 | 43 | 3 |
| CYANOPHYTA (BLUE-GREEN ALGAE) | | | | | | |
| .CYANOPHYCEAE | | | | | | |
| ..CHROCCOCCALES | | | | | | |
| ...CHROCCOCCAEAE | | | | | | |
| ....ANACYSTIS | -- | - | -- | - | -- | - |
| ..HORMOGONALES | | | | | | |
| ...OSCILLATORIACEAE | | | | | | |
| ....OSCILLATORIA | -- | - | 53# | 18 | 740# | 45 |
| EUGLENOPHYTA (EUGLENOIDS) | | | | | | |
| .EUGLENOPHYCEAE | | | | | | |
| ..EUGLENALES | | | | | | |
| ...EUGLENACEAE | | | | | | |
| ....EUGLENA | -- | - | 2 | 1 | -- | - |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

## 09521100 COLORADO RIVER BELOW YUMA MAIN CANAL WASTEWAY, AT YUMA, AZ

LOCATION.--Lat 32°43'54", long 114°37'55", in SW¼SW¼ sec.26, T.16 S., R.22 E., San Bernardino meridian, in California, Imperial County, Hydrologic Unit 15030107, on right bank 1,000 ft (305 m) downstream from Yuma Main Canal wasteway, 0.6 mi (1.0 km) downstream from former gaging station on Colorado River at Yuma, 1.1 mi (1.8 km) northwest of post office in Yuma, 5.2 mi (8.4 km) downstream from Gila River, and 6.4 mi (10.3 km) upstream from northerly international boundary.

DRAINAGE AREA.--246,500 $mi^2$ (638,400 $km^2$), approximately, including all closed basins entirely within the drainage boundary, also 3,959 $mi^2$ (10,254 $km^2$) in Great Divide basin in southern Wyoming (previously considered part of the Missouri River basin).

PERIOD OF RECORD.--October 1963 to current year. If records for Yuma Main Canal wasteway at Yuma (sta 09525000) and Reservation Main Drain No. 4 (sta 09530000) are subtracted from records at this station, records equivalent to those published 1902-64 as "Colorado River at Yuma" (sta 09521000) can be obtained.

GAGE.--Water-stage recorder. Datum of gage is 101.99 ft (31.087 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records excellent. Natural flow of stream affected by transmountain diversions, storage reservoirs, power developments, ground-water withdrawals and diversions for irrigation, municipal, and industrial uses, and return flows from irrigated areas.

AVERAGE DISCHARGE.--15 years, 848 $ft^3/s$ (24.02 $m^3/s$), 614,400 acre-ft/yr (758 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,310 $ft^3/s$ (150 $m^3/s$) Aug. 19, 1977, gage height, 17.28 ft (5.267 m); minimum daily, 260 $ft^3/s$ (7.36 $m^3/s$) Jan. 17, 1970.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum gage height since at least 1878, 34.0 ft (10.4 m) Jan. 22, 1916, discharge, 250,000 $ft^3/s$ (7,080 $m^3/s$), at former gaging station at Yuma.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,240 $ft^3/s$ (91.8 $m^3/s$) Mar. 2, gage height, 13.83 ft (4.215 m); minimum daily, 415 $ft^3/s$ (11.8 $m^3/s$) Dec. 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 643 | 664 | 948 | 494 | 1230 | 1750 | 648 | 520 | 1230 | 924 | 742 | 1490 |
| 2 | 666 | 682 | 1190 | 1320 | 1130 | 3060 | 607 | 647 | 1260 | 557 | 676 | 1270 |
| 3 | 666 | 660 | 482 | 1300 | 884 | 2190 | 616 | 1420 | 1240 | 546 | 611 | 1270 |
| 4 | 652 | 651 | 444 | 1260 | 910 | 798 | 601 | 1350 | 1220 | 551 | 581 | 1310 |
| 5 | 662 | 642 | 441 | 1630 | 911 | 709 | 579 | 1320 | 1390 | 553 | 610 | 1280 |
| 6 | 659 | 744 | 442 | 1460 | 1040 | 668 | 574 | 1300 | 1380 | 540 | 613 | 1310 |
| 7 | 656 | 630 | 453 | 1240 | 1040 | 762 | 593 | 1270 | 1320 | 506 | 612 | 1310 |
| 8 | 659 | 654 | 418 | 1040 | 1130 | 758 | 575 | 1270 | 526 | 603 | 609 | 1440 |
| 9 | 668 | 628 | 432 | 1130 | 1170 | 716 | 578 | 1270 | 469 | 768 | 602 | 1450 |
| 10 | 658 | 688 | 424 | 1300 | 1250 | 604 | 563 | 1230 | 476 | 707 | 601 | 1330 |
| 11 | 663 | 653 | 415 | 2250 | 1200 | 582 | 594 | 1240 | 553 | 567 | 601 | 1300 |
| 12 | 685 | 661 | 454 | 2180 | 1130 | 596 | 835 | 1220 | 529 | 543 | 595 | 1340 |
| 13 | 665 | 662 | 587 | 2180 | 565 | 555 | 785 | 1280 | 524 | 529 | 587 | 1350 |
| 14 | 666 | 694 | 589 | 2090 | 551 | 532 | 702 | 1240 | 511 | 531 | 582 | 1370 |
| 15 | 679 | 714 | 571 | 2050 | 525 | 595 | 634 | 1260 | 529 | 520 | 541 | 1360 |
| 16 | 660 | 705 | 535 | 1990 | 489 | 696 | 617 | 1270 | 521 | 531 | 491 | 1350 |
| 17 | 666 | 708 | 550 | 1960 | 480 | 693 | 612 | 1310 | 497 | 527 | 484 | 1350 |
| 18 | 663 | 711 | 485 | 1930 | 484 | 665 | 612 | 1280 | 489 | 532 | 473 | 1330 |
| 19 | 655 | 710 | 478 | 1870 | 478 | 626 | 623 | 1270 | 485 | 538 | 482 | 1350 |
| 20 | 660 | 735 | 478 | 1750 | 468 | 595 | 633 | 1260 | 489 | 529 | 522 | 1310 |
| 21 | 678 | 783 | 482 | 1690 | 478 | 594 | 630 | 1270 | 485 | 509 | 513 | 1320 |
| 22 | 694 | 790 | 477 | 1610 | 480 | 591 | 604 | 1270 | 493 | 514 | 499 | 1300 |
| 23 | 687 | 783 | 463 | 1530 | 499 | 585 | 601 | 1260 | 498 | 525 | 497 | 1360 |
| 24 | 736 | 781 | 468 | 1350 | 627 | 563 | 558 | 1290 | 487 | 521 | 483 | 1320 |
| 25 | 754 | 774 | 458 | 939 | 607 | 564 | 519 | 1260 | 484 | 530 | 478 | 1350 |
| 26 | 763 | 774 | 450 | 984 | 516 | 659 | 511 | 1230 | 477 | 528 | 466 | 1360 |
| 27 | 756 | 757 | 418 | 950 | 459 | 1280 | 517 | 1260 | 485 | 554 | 468 | 1360 |
| 28 | 745 | 777 | 1110 | 955 | 473 | 747 | 526 | 1260 | 486 | 551 | 467 | 1390 |
| 29 | 721 | 766 | 1300 | 957 | --- | 648 | 572 | 1260 | 476 | 533 | 466 | 1400 |
| 30 | 730 | 776 | 507 | 1120 | --- | 820 | 556 | 1280 | 564 | 562 | 469 | 1430 |
| 31 | 669 | --- | 462 | 1070 | --- | 770 | --- | 1270 | --- | 768 | 524 | --- |
| TOTAL | 21184 | 21357 | 17411 | 45579 | 21204 | 25971 | 18175 | 38137 | 20573 | 17697 | 16945 | 40460 |
| MEAN | 683 | 712 | 562 | 1470 | 757 | 838 | 606 | 1230 | 686 | 571 | 547 | 1349 |
| MAX | 763 | 790 | 1300 | 2250 | 1250 | 3060 | 835 | 1420 | 1390 | 924 | 742 | 1490 |
| MIN | 643 | 628 | 415 | 494 | 459 | 532 | 511 | 520 | 469 | 506 | 466 | 1270 |
| AC-FT | 42020 | 42360 | 34530 | 90410 | 42060 | 51510 | 36050 | 75640 | 40810 | 35100 | 33610 | 80250 |

CAL YR 1977 TOTAL 304808 MEAN 835 MAX 5160 MIN 415 AC-FT 604600
WTR YR 1978 TOTAL 304693 MEAN 835 MAX 3060 MIN 415 AC-FT 604400

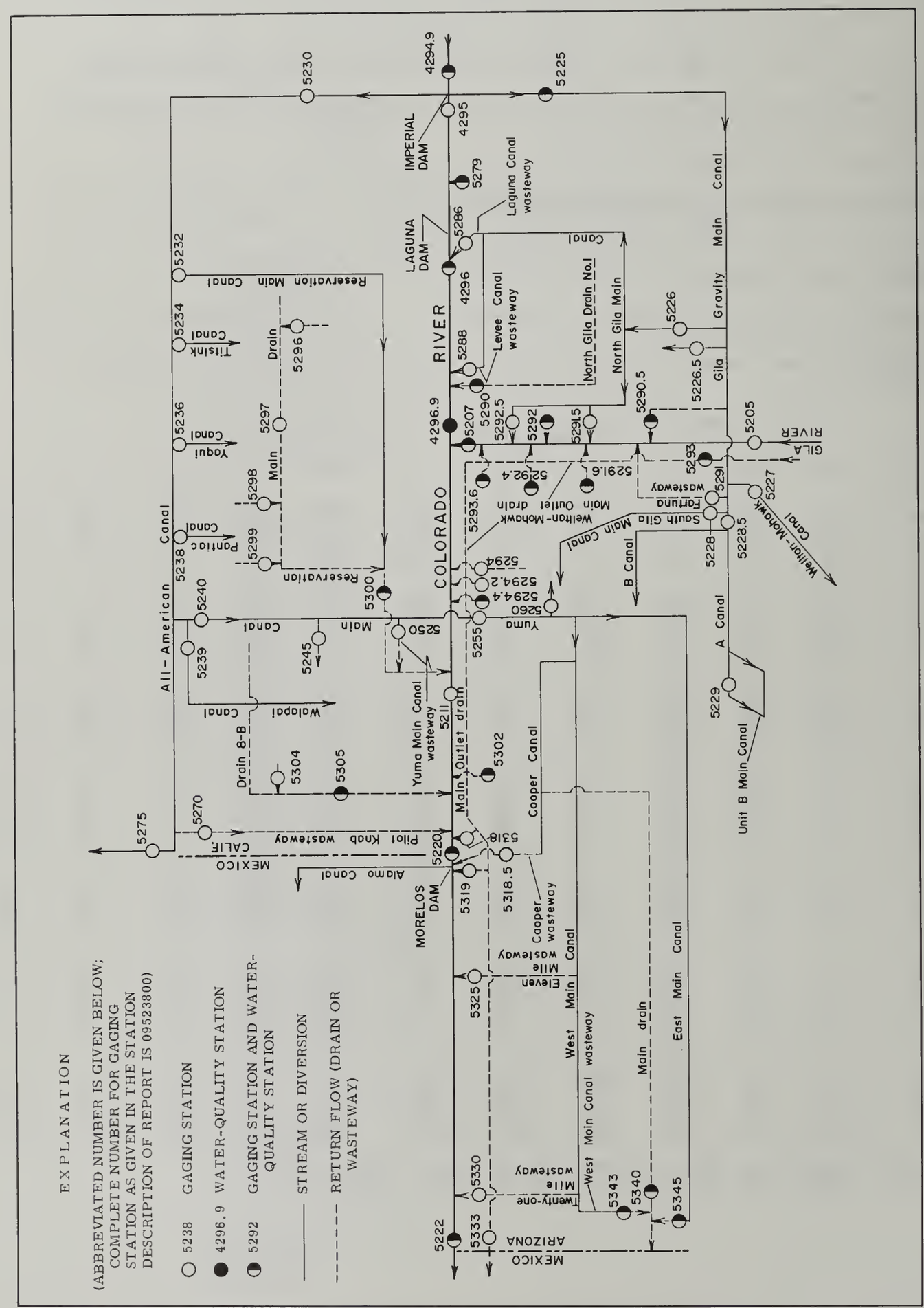


FIGURE 6.--SCHEMATIC DIAGRAM SHOWING GAGING STATIONS AND WATER-QUALITY STATIONS ON STREAMS, DIVERSIONS, AND RETURN FLOWS BETWEEN IMPERIAL DAM AND THE SOUTHERLY INTERNATIONAL BOUNDARY.

## 09522000 COLORADO RIVER AT NORTHERLY INTERNATIONAL BOUNDARY ABOVE MORELOS DAM, NEAR ANDRADE, CA

(National stream-quality accounting network and pesticide station)

LOCATION.--Lat 32°43'07", long 114°43'05", in NE¼SE¼ sec.21, T.8 S., R.24 W., Gila and Salt River meridian, in Arizona, Yuma County, Hydrologic Unit 15030108, on left bank at northerly international boundary, 0.5 mi (0.8 km) east of Andrade, 1.1 mi (1.8 km) upstream from Morelos Dam, 1.1 mi (1.8 km) downstream from Rockwood Gate, and 6.4 mi (10.3 km) downstream from gaging station on Colorado River below Yuma Main Canal wasteway.

DRAINAGE AREA.--246,700 $mi^2$ (639,000 $km^2$), approximately, including all closed basins entirely within the drainage boundary, also 3,959 $mi^2$ (10,254 $km^2$) in Great Divide basin in southern Wyoming (previously considered part of the Missouri River basin).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1950 to current year. Prior to October 1958 published as "at international boundary."

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Supplementary water-stage recorder 1,680 ft (510 m) upstream at same datum.

REMARKS.--This record shows water passing northerly international boundary. Minor diversions to the United States below this station by pumping from ground water for irrigation in the floodway between river and Yuma levee.

COOPERATION.--Records furnished by International Boundary and Water Commission, U.S. Section (discharge figures rounded in accordance with Geological Survey standard practice).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 25,390 $ft^3/s$ (719 $m^3/s$) Jan. 1, 1953; maximum elevation, 114.34 ft (34.851 m) Aug. 18, 1977; minimum discharge, 495 $ft^3/s$ (14.0 $m^3/s$) Sept. 28, 1970; minimum elevation, 101.82 ft (31.035 m) Sept. 18, 1971.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,190 $ft^3/s$ (147 $m^3/s$) Mar. 3, elevation, 108.26 ft (32.998 m); minimum discharge, 674 $ft^3/s$ (19.1 $m^3/s$) Oct. 1; elevation, 102.23 ft (31.160 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 748 | 773 | 1170 | 1700 | 1200 | 5280 | 3410 | 2020 | 1550 | 2420 | 3200 | 1580 |
| 2 | 764 | 800 | 1460 | 1480 | 1280 | 4810 | 3410 | 1750 | 1380 | 2520 | 3190 | 1500 |
| 3 | 776 | 798 | 1730 | 1510 | 982 | 4450 | 3600 | 1440 | 1590 | 2680 | 3290 | 1470 |
| 4 | 764 | 764 | 1900 | 1390 | 1050 | 2460 | 3600 | 1480 | 1590 | 2680 | 3520 | 1510 |
| 5 | 776 | 752 | 1930 | 1550 | 1040 | 2550 | 3700 | 1400 | 1520 | 2690 | 3370 | 1510 |
| 6 | 776 | 878 | 2000 | 1640 | 1180 | 2390 | 3760 | 1390 | 1520 | 2780 | 3370 | 1510 |
| 7 | 764 | 729 | 2020 | 1400 | 1160 | 2330 | 3760 | 1380 | 1510 | 2780 | 3520 | 1470 |
| 8 | 752 | 764 | 1990 | 1090 | 1270 | 2340 | 3910 | 1360 | 1640 | 2800 | 3200 | 1480 |
| 9 | 776 | 729 | 2100 | 1180 | 1300 | 2410 | 3890 | 1400 | 1650 | 2800 | 3200 | 1510 |
| 10 | 764 | 812 | 2070 | 1290 | 1450 | 2410 | 4050 | 1360 | 1650 | 2810 | 3200 | 1410 |
| 11 | 764 | 752 | 2230 | 2010 | 1420 | 2630 | 4050 | 1380 | 1710 | 2860 | 3190 | 1400 |
| 12 | 788 | 788 | 2230 | 2180 | 1400 | 2630 | 4070 | 1350 | 1740 | 2890 | 3160 | 1380 |
| 13 | 778 | 788 | 2290 | 2160 | 1710 | 2660 | 4060 | 1370 | 1740 | 2920 | 3160 | 1380 |
| 14 | 764 | 848 | 2290 | 2100 | 2020 | 2680 | 4070 | 1360 | 1890 | 2920 | 2950 | 1390 |
| 15 | 776 | 848 | 2360 | 2010 | 2150 | 2660 | 4030 | 1380 | 1870 | 2920 | 2940 | 1390 |
| 16 | 788 | 860 | 2370 | 2010 | 2140 | 2660 | 4050 | 1380 | 1870 | 2920 | 2890 | 1380 |
| 17 | 788 | 860 | 2360 | 1970 | 2280 | 2680 | 3980 | 1410 | 1900 | 2900 | 2820 | 1380 |
| 18 | 788 | 860 | 2360 | 1940 | 2410 | 2680 | 3900 | 1380 | 1920 | 2920 | 2760 | 1360 |
| 19 | 797 | 848 | 2360 | 1940 | 2410 | 2680 | 3920 | 1400 | 1980 | 2920 | 2660 | 1380 |
| 20 | 764 | 896 | 2360 | 1750 | 2520 | 2900 | 3890 | 1390 | 2020 | 2920 | 2660 | 1380 |
| 21 | 788 | 956 | 2360 | 1750 | 2550 | 2900 | 3900 | 1390 | 1990 | 2930 | 2660 | 1360 |
| 22 | 812 | 956 | 2360 | 1640 | 2520 | 2880 | 3880 | 1400 | 2060 | 2930 | 2450 | 1350 |
| 23 | 812 | 956 | 2290 | 1550 | 2560 | 3070 | 3920 | 1380 | 2070 | 2930 | 2510 | 1350 |
| 24 | 884 | 988 | 2280 | 1500 | 2520 | 3120 | 3890 | 1400 | 2070 | 2940 | 2190 | 1360 |
| 25 | 872 | 956 | 2160 | 1070 | 2520 | 3230 | 3670 | 1400 | 2120 | 2950 | 2090 | 1380 |
| 26 | 898 | 968 | 2150 | 1120 | 2520 | 3360 | 3420 | 1380 | 2120 | 2950 | 1990 | 1390 |
| 27 | 898 | 956 | 2090 | 1080 | 2560 | 3300 | 3180 | 1360 | 2230 | 2990 | 1990 | 1360 |
| 28 | 896 | 948 | 2550 | 1090 | 2550 | 3330 | 2860 | 1390 | 2250 | 3020 | 1990 | 1390 |
| 29 | 872 | 944 | 3100 | 1080 | --- | 3340 | 2580 | 1380 | 2210 | 3020 | 2000 | 1400 |
| 30 | 872 | 980 | 1900 | 1250 | --- | 3340 | 2270 | 1390 | 2160 | 3020 | 1920 | 1450 |
| 31 | 814 | --- | 1850 | 1240 | --- | 3340 | --- | 1360 | --- | 2980 | 1840 | --- |
| TOTAL | 24867 | 25735 | 66670 | 48650 | 52672 | 91500 | 110680 | 43990 | 54920 | 88730 | 85280 | 42520 |
| MEAN | 802 | 858 | 2151 | 1569 | 1881 | 2952 | 3689 | 1419 | 1831 | 2862 | 2751 | 1417 |
| MAX | 896 | 980 | 3100 | 2160 | 2560 | 4810 | 4070 | 2020 | 2250 | 3020 | 3370 | 1580 |
| MIN | 748 | 729 | 1170 | 1070 | 982 | 2330 | 2270 | 1350 | 1350 | 2420 | 1840 | 1350 |
| AC-FT | 49320 | 51050 | 132200 | 96500 | 104500 | 181500 | 219500 | 87250 | 108900 | 176000 | 169200 | 84340 |

CAL YR 1977 TOTAL 740622 MEAN 2029 MAX 11300 MIN 729 AC-FT 1469000
WTR YR 1978 TOTAL 736214 MEAN 2017 MAX 4810 MIN 729 AC-FT 1460000

09522000 COLORADO RIVER AT NORTHERLY INTERNATIONAL BOUNDARY, ABOVE MORELOS DAM, NEAR ANDRADE, CA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1968 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1969 to current year.

REMARKS.--Unpublished chemical analyses (continuing record) for water years 1961-68 available from district office in Tucson, Ariz.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | OXYGEN, DIS-SOLVED (MG/L) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) | COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) | STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 03... | 0830 | 752 | 1820 | 8.2 | 24.5 | -- | -- | -- | -- | 450 | 263 | -- |
| 04... | 0820 | 800 | 1750 | 7.8 | 23.5 | 7.4 | 23 | 190 | 340 | -- | -- | -- |
| 11... | 0820 | 800 | 1750 | 8.2 | -- | -- | -- | -- | -- | 445 | 266 | -- |
| 17... | 0830 | 800 | 1790 | 7.9 | 25.0 | -- | -- | -- | -- | 445 | 260 | -- |
| 18... | 0820 | 764 | -- | -- | 22.5 | -- | 18 | -- | -- | -- | -- | -- |
| 25... | 0830 | 872 | 1700 | 7.9 | 23.0 | -- | -- | -- | -- | 435 | 256 | -- |
| 31... | 0835 | 884 | 1700 | 7.9 | -- | -- | -- | -- | -- | 435 | 260 | -- |
| NOV | | | | | | | | | | | | |
| 07... | 0830 | 729 | 1720 | 7.9 | -- | -- | -- | -- | -- | 435 | 253 | -- |
| 08... | 0830 | 764 | 1760 | 7.8 | 16.5 | 8.1 | 23 | 120 | 270 | -- | -- | 91 |
| 14... | 0830 | 872 | 1730 | 7.9 | -- | -- | -- | -- | -- | 435 | 254 | -- |
| 21... | 0900 | 932 | 1710 | 7.9 | 16.0 | -- | 29 | -- | -- | 430 | 253 | -- |
| 28... | 0835 | 920 | 1690 | 7.9 | 20.0 | -- | -- | -- | -- | 430 | 253 | -- |
| DEC | | | | | | | | | | | | |
| 05... | 0830 | 1920 | 1570 | 7.9 | -- | -- | -- | -- | -- | 410 | 244 | -- |
| 06... | 0845 | 2000 | 1590 | 7.8 | 15.0 | 8.8 | 49 | 1500 | 290 | -- | -- | -- |
| 12... | 0830 | 2230 | 1510 | 7.9 | 15.0 | -- | -- | -- | -- | 405 | 242 | -- |
| 19... | 0830 | 2360 | 1530 | 8.0 | 13.5 | -- | 0 | -- | -- | 405 | 242 | -- |
| 27... | 0830 | 2190 | 1690 | 7.9 | 16.5 | -- | -- | -- | -- | 435 | 253 | -- |
| JAN | | | | | | | | | | | | |
| 03... | 0835 | 1520 | 1650 | 7.9 | 15.0 | -- | -- | -- | -- | 425 | 244 | -- |
| 09... | 0830 | 1220 | 1710 | 7.9 | -- | -- | -- | -- | -- | 435 | 252 | -- |
| 10... | 0845 | -- | -- | -- | -- | -- | -- | 420 | 440 | -- | -- | -- |
| 16... | 0845 | 2080 | 1580 | 7.9 | 14.0 | -- | -- | -- | -- | 410 | 241 | -- |
| 23... | 0840 | 1520 | 1620 | 7.9 | 13.0 | -- | -- | -- | -- | 420 | 244 | -- |
| 24... | 0845 | 1560 | -- | -- | 13.5 | -- | 21 | -- | -- | -- | -- | -- |
| 30... | 0830 | 1210 | 1720 | 7.9 | -- | -- | -- | -- | -- | 425 | 243 | -- |
| FEB | | | | | | | | | | | | |
| 06... | 0800 | 1200 | 1640 | 8.1 | -- | -- | -- | -- | -- | 420 | 243 | -- |
| 07... | 0840 | 1150 | 1750 | 7.9 | 15.5 | 8.8 | 23 | 150 | 190 | -- | -- | 110 |
| 13... | 0830 | 1690 | 1600 | 8.1 | -- | -- | -- | -- | -- | 410 | 234 | -- |
| 21... | 0830 | 2540 | 1440 | 8.0 | 14.5 | -- | 21 | -- | -- | 385 | 229 | -- |
| 27... | 0845 | 2560 | 1470 | 8.0 | 17.0 | -- | -- | -- | -- | 395 | 238 | -- |
| MAR | | | | | | | | | | | | |
| 06... | 0835 | 2460 | 1500 | 8.0 | 16.5 | -- | -- | -- | -- | 405 | 241 | -- |
| 07... | 0830 | 2300 | 1580 | 8.0 | 17.0 | 8.1 | 13 | 97 | 210 | -- | -- | -- |
| 13... | 0830 | 2650 | 1460 | 7.9 | -- | -- | -- | -- | -- | 390 | 234 | -- |
| 20... | 0830 | 2950 | 1370 | 8.0 | -- | -- | -- | -- | -- | 375 | 226 | -- |
| 21... | 0900 | 2930 | -- | -- | 19.5 | -- | 26 | -- | -- | -- | -- | -- |
| 27... | 0830 | 3270 | 1320 | 8.0 | 20.0 | -- | -- | -- | -- | 370 | 219 | -- |
| APR | | | | | | | | | | | | |
| 03... | 0820 | 3620 | 1350 | 8.2 | -- | -- | -- | -- | -- | 375 | 219 | -- |
| 10... | 0830 | 4100 | 1340 | 8.1 | -- | -- | -- | -- | -- | 370 | 216 | -- |
| 11... | 0830 | 4050 | 1350 | 7.9 | 18.5 | 8.2 | 12 | 250 | 59 | -- | -- | -- |
| 17... | 0830 | 3930 | 1350 | 8.0 | -- | -- | -- | -- | -- | 375 | 221 | -- |
| 24... | 0830 | 3850 | 1350 | 7.9 | 20.0 | -- | -- | -- | -- | 375 | 218 | -- |
| 25... | 1030 | 3700 | -- | -- | 21.0 | -- | 17 | -- | -- | -- | -- | -- |
| MAY | | | | | | | | | | | | |
| 01... | 0830 | 1950 | 1420 | 8.1 | -- | -- | -- | -- | -- | 390 | 232 | -- |
| 08... | 0830 | 1410 | 1510 | 8.0 | -- | -- | -- | -- | -- | 405 | 233 | -- |
| 09... | 0830 | 1420 | 1500 | 7.9 | 22.0 | 8.1 | 25 | K4000 | 540 | -- | -- | 100 |
| 15... | 0815 | 1380 | 1560 | 8.1 | -- | -- | -- | -- | -- | 410 | 244 | -- |
| 22... | 0840 | 1410 | 1490 | 8.0 | 24.5 | -- | -- | -- | -- | 395 | 228 | -- |
| 23... | 0910 | 1400 | -- | -- | 22.5 | -- | 17 | -- | -- | -- | -- | -- |
| 30... | 0830 | 1390 | 1550 | 7.9 | 23.5 | -- | -- | -- | -- | 410 | 238 | -- |

09522000 COLORADO RIVER AT NORTHERLY INTERNATIONAL BOUNDARY, ABOVE MORELOS DAM, NEAR ANDRADE, CA--Continued

COOPERATION.--Quarterly pesticide analysis performed by Environmental Protection Agency.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 2,230 micromhos Dec. 9, 1969; minimum, 1,020 micromhos Sept. 27, 1976.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 1,840 micromhos Oct. 18; minimum, 1,270 micromhos Mar. 3.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, TOTAL RECOV-ERABLE (MG/L AS K) | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | BICAR-BONATE (MG/L AS HCO3) | CAR-BONATE (MG/L AS CO3) | SULFATE DIS-SOLVED (MG/L AS SO4) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 03... | 120 | -- | 37 | -- | 220 | 4.5 | -- | 6.0 | 228 | 0 | 405 |
| 04... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 11... | 114 | -- | 39 | -- | 210 | 4.3 | -- | 6.0 | 218 | 0 | 400 |
| 17... | 114 | -- | 39 | -- | 215 | 4.4 | -- | 6.0 | 226 | 0 | 400 |
| 18... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 25... | 112 | -- | 38 | -- | 205 | 4.3 | -- | 5.6 | 218 | 0 | 395 |
| 31... | 108 | -- | 40 | -- | 205 | 4.3 | -- | 5.6 | 214 | 0 | 395 |
| NOV | | | | | | | | | | | |
| 07... | 109 | -- | 40 | -- | 210 | 4.4 | -- | 5.7 | 222 | 0 | 395 |
| 08... | -- | 38 | -- | 120 | -- | -- | 5.9 | 5.7 | -- | -- | -- |
| 14... | 111 | -- | 38 | -- | 210 | 4.4 | -- | 5.6 | 220 | 0 | 395 |
| 21... | 108 | -- | 39 | -- | 205 | 4.3 | -- | 5.7 | 216 | 0 | 395 |
| 28... | 108 | -- | 39 | -- | 200 | 4.2 | -- | 5.4 | 216 | 0 | 390 |
| DEC | | | | | | | | | | | |
| 05... | 105 | -- | 36 | -- | 180 | 3.9 | -- | 5.4 | 202 | 0 | 370 |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 12... | 101 | -- | 37 | -- | 170 | 3.7 | -- | 5.6 | 198 | 0 | 355 |
| 19... | 103 | -- | 36 | -- | 175 | 3.8 | -- | 5.6 | 198 | 0 | 360 |
| 27... | 110 | -- | 39 | -- | 200 | 4.2 | -- | 5.9 | 222 | 0 | 385 |
| JAN | | | | | | | | | | | |
| 03... | 112 | -- | 35 | -- | 195 | 4.1 | -- | 5.5 | 220 | 0 | 380 |
| 09... | 113 | -- | 37 | -- | 205 | 4.3 | -- | 5.8 | 224 | 0 | 390 |
| 10... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 16... | 106 | -- | 35 | -- | 185 | 4.0 | -- | 5.5 | 206 | 0 | 375 |
| 23... | 109 | -- | 36 | -- | 190 | 4.0 | -- | 5.7 | 214 | 0 | 375 |
| 24... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 30... | 113 | -- | 35 | -- | 210 | 4.4 | -- | 5.6 | 222 | 0 | 390 |
| FEB | | | | | | | | | | | |
| 06... | 108 | -- | 37 | -- | 195 | 4.1 | -- | 5.4 | 216 | 0 | 380 |
| 07... | -- | 39 | -- | 210 | -- | -- | 5.9 | -- | -- | -- | -- |
| 13... | 107 | -- | 35 | -- | 190 | 4.1 | -- | 5.4 | 214 | 0 | 365 |
| 21... | 104 | -- | 31 | -- | 160 | 3.5 | -- | 5.3 | 190 | 0 | 335 |
| 27... | 102 | -- | 34 | -- | 165 | 3.6 | -- | 5.6 | 192 | 0 | 340 |
| MAR | | | | | | | | | | | |
| 06... | 102 | -- | 37 | -- | 170 | 3.7 | -- | 5.6 | 200 | 0 | 350 |
| 07... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 13... | 98 | -- | 35 | -- | 165 | 3.6 | -- | 5.6 | 190 | 0 | 340 |
| 20... | 100 | -- | 31 | -- | 150 | 3.4 | -- | 5.6 | 182 | 0 | 330 |
| 21... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 27... | 100 | -- | 29 | -- | 140 | 3.2 | -- | 5.6 | 184 | 0 | 320 |
| APR | | | | | | | | | | | |
| 03... | 97 | -- | 32 | -- | 145 | 3.3 | -- | 5.4 | 190 | 0 | 325 |
| 10... | 97 | -- | 31 | -- | 145 | 3.3 | -- | 5.4 | 188 | 0 | 325 |
| 11... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 17... | 98 | -- | 32 | -- | 145 | 3.3 | -- | 5.4 | 188 | 0 | 325 |
| 24... | 98 | -- | 32 | -- | 145 | 3.3 | -- | 5.5 | 192 | 0 | 325 |
| 25... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MAY | | | | | | | | | | | |
| 01... | 102 | -- | 33 | -- | 155 | 3.4 | -- | 5.6 | 192 | 0 | 340 |
| 08... | 103 | -- | 36 | -- | 170 | 3.7 | -- | 5.6 | 210 | 0 | 350 |
| 09... | -- | 35 | -- | 170 | -- | -- | 5.9 | -- | -- | -- | -- |
| 15... | 103 | -- | 37 | -- | 180 | 3.9 | -- | 5.6 | 202 | 0 | 370 |
| 22... | 103 | -- | 34 | -- | 170 | 3.7 | -- | 5.6 | 204 | 0 | 345 |
| 23... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 30... | 103 | -- | 37 | -- | 180 | 3.9 | -- | 5.6 | 210 | 0 | 365 |

09522000 COLORADO RIVER AT NORTHERLY INTERNATIONAL BOUNDARY, ABOVE MORELOS DAM, NEAR ANDRADE, CA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | OXYGEN, DIS-SOLVED (MG/L) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) | COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) | STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| JUN | | | | | | | | | | | | |
| 05... | 0830 | 1560 | 1560 | 8.0 | -- | -- | -- | -- | -- | 410 | 241 | -- |
| 12... | 0830 | 1740 | 1530 | 8.0 | -- | -- | -- | -- | -- | 405 | 240 | -- |
| 13... | 0830 | 1740 | 1500 | 8.0 | 26.5 | 6.8 | 27 | 100 | 44 | -- | -- | -- |
| 19... | 0830 | 1990 | 1430 | 8.0 | 26.5 | -- | -- | -- | -- | 385 | 224 | -- |
| 26... | 0830 | 2120 | 1410 | 7.9 | -- | -- | -- | -- | -- | 385 | 228 | -- |
| 28... | 0830 | 2260 | -- | -- | -- | -- | -- | 87 | -- | -- | -- | -- |
| JUL | | | | | | | | | | | | |
| 03... | 0820 | 2680 | 1400 | 7.9 | 27.0 | -- | -- | -- | -- | 380 | 224 | -- |
| 05... | 0830 | 2660 | -- | -- | -- | -- | -- | 77 | -- | -- | -- | -- |
| 10... | 0800 | 2900 | 1400 | 7.9 | 28.0 | 6.6 | 14 | -- | -- | 380 | 224 | -- |
| 11... | 0835 | -- | -- | -- | -- | -- | -- | 55 | 26 | -- | -- | -- |
| 17... | 0830 | 2930 | 1380 | 7.9 | -- | -- | -- | 36 | -- | 375 | 224 | -- |
| 24... | 0830 | 2940 | 1350 | 8.0 | 29.0 | -- | 12 | -- | -- | 375 | 226 | -- |
| 25... | 0820 | 2940 | -- | -- | 29.5 | -- | -- | 47 | -- | -- | -- | -- |
| 31... | 0830 | 3020 | 1360 | 7.9 | -- | -- | -- | -- | -- | 380 | 231 | -- |
| AUG | | | | | | | | | | | | |
| 02... | 0830 | 3180 | -- | -- | -- | -- | -- | 39 | -- | -- | -- | -- |
| 07... | 0830 | 3300 | 1360 | 7.9 | -- | -- | -- | -- | -- | 380 | 229 | -- |
| 08... | 0830 | 3190 | 1380 | 7.9 | 29.0 | 6.2 | 24 | 100 | 53 | -- | -- | 86 |
| 14... | 0830 | 2930 | 1400 | 7.9 | -- | -- | -- | -- | -- | 380 | 228 | -- |
| 16... | 0830 | 2880 | -- | -- | -- | -- | -- | 83 | -- | -- | -- | -- |
| 21... | 0830 | 2640 | 1490 | 8.0 | -- | -- | -- | -- | -- | 395 | 236 | -- |
| 24... | 0830 | 2170 | -- | -- | -- | -- | -- | 55 | -- | -- | -- | -- |
| 28... | 0820 | 1980 | 1510 | 8.0 | 25.5 | -- | 11 | -- | -- | 395 | 232 | -- |
| 30... | 0920 | 1880 | -- | -- | 27.0 | -- | -- | 100 | -- | -- | -- | -- |
| SEP | | | | | | | | | | | | |
| 05... | 0900 | 1560 | 1480 | 8.0 | 28.0 | -- | -- | -- | -- | 390 | 230 | -- |
| 06... | 0830 | 1560 | -- | -- | -- | -- | -- | 340 | -- | -- | -- | -- |
| 11... | 0840 | 1390 | 1490 | 7.9 | 25.5 | -- | -- | -- | -- | 395 | 231 | -- |
| 12... | 0830 | 1400 | 1480 | 7.8 | 26.0 | 7.0 | 14 | 220 | 280 | -- | -- | -- |
| 18... | 0840 | 1380 | 1520 | 7.9 | -- | -- | -- | -- | -- | 400 | 236 | -- |
| 19... | 0855 | 1360 | -- | -- | 24.5 | -- | -- | 170 | -- | -- | -- | -- |
| 25... | 0840 | 1390 | 1510 | 8.0 | 25.5 | -- | 7 | -- | -- | 395 | 231 | -- |
| 28... | 0830 | 1430 | -- | -- | -- | -- | -- | K3000 | -- | -- | -- | -- |

| DATE | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, TOTAL RECOV-ERABLE (MG/L AS K) | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | BICAR-BONATE (MG/L AS HCO3) | CAR-BONATE (MG/L AS CO3) | SULFATE DIS-SOLVED (MG/L AS SO4) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| JUN | | | | | | | | | | | |
| 05... | 103 | -- | 37 | -- | 180 | 3.9 | -- | 5.7 | 206 | 0 | 365 |
| 12... | 103 | -- | 36 | -- | 175 | 3.8 | -- | 5.6 | 202 | 0 | 360 |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 19... | 100 | -- | 33 | -- | 160 | 3.5 | -- | 5.5 | 196 | 0 | 345 |
| 26... | 98 | -- | 34 | -- | 155 | 3.4 | -- | 5.5 | 192 | 0 | 345 |
| 28... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | | | |
| 03... | 98 | -- | 33 | -- | 155 | 3.5 | -- | 5.6 | 190 | 0 | 340 |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 10... | 97 | -- | 34 | -- | 155 | 3.5 | -- | 5.6 | 190 | 0 | 340 |
| 11... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 17... | 94 | -- | 34 | -- | 150 | 3.4 | -- | 5.6 | 184 | 0 | 340 |
| 24... | 94 | -- | 34 | -- | 145 | 3.3 | -- | 5.5 | 182 | 0 | 335 |
| 25... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 31... | 94 | -- | 35 | -- | 145 | 3.2 | -- | 5.7 | 182 | 0 | 335 |
| AUG | | | | | | | | | | | |
| 02... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 07... | 95 | -- | 35 | -- | 145 | 3.2 | -- | 5.7 | 184 | 0 | 335 |
| 08... | -- | 34 | -- | 130 | -- | -- | 4.8 | -- | -- | -- | -- |
| 14... | 96 | -- | 34 | -- | 155 | 3.5 | -- | 5.5 | 186 | 0 | 340 |
| 16... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 21... | 99 | -- | 36 | -- | 170 | 3.7 | -- | 5.6 | 194 | 0 | 355 |
| 24... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 28... | 102 | -- | 34 | -- | 175 | 3.8 | -- | 5.6 | 198 | 0 | 360 |
| 30... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| SEP | | | | | | | | | | | |
| 05... | 98 | -- | 35 | -- | 170 | 3.8 | -- | 5.6 | 196 | 0 | 355 |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 11... | 98 | -- | 37 | -- | 170 | 3.7 | -- | 5.6 | 200 | 0 | 355 |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 18... | 100 | -- | 37 | -- | 175 | 3.8 | -- | 5.6 | 200 | 0 | 360 |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 25... | 98 | -- | 37 | -- | 175 | 3.8 | -- | 5.6 | 200 | 0 | 360 |
| 28... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

09522000 COLORADO RIVER AT NORTHERLY INTERNATIONAL BOUNDARY, ABOVE MORELOS DAM, NEAR ANDRADE, CA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | CHLORIDE, DISSOLVED (MG/L AS CL) | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) | SOLIDS, RESIDUE AT 105 DEG. C, DISSOLVED (MG/L) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | SOLIDS, DISSOLVED (TONS PER AC-FT) | NITROGEN, NITRATE TOTAL (MG/L AS N) | NITROGEN, NITRATE DISSOLVED (MG/L AS N) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 03... | 232 | .6 | 14 | 1160 | -- | 1150 | 1.58 | -- | .45 |
| 04... | -- | -- | -- | -- | -- | -- | -- | .42 | -- |
| 11... | 220 | .5 | 14 | 1120 | -- | 1110 | 1.52 | -- | .41 |
| 17... | 228 | .5 | 14 | 1130 | -- | 1130 | 1.54 | -- | .41 |
| 18... | -- | -- | -- | -- | -- | -- | -- | .35 | -- |
| 25... | 208 | .6 | 12 | 1080 | -- | 1080 | 1.47 | -- | .38 |
| 31... | 208 | .5 | 12 | 1090 | -- | 1080 | 1.48 | -- | .36 |
| NOV | | | | | | | | | |
| 07... | 212 | .6 | 12 | 1100 | -- | 1090 | 1.50 | -- | .27 |
| 08... | -- | -- | -- | -- | 1100 | -- | -- | .35 | -- |
| 14... | 215 | .6 | 13 | 1100 | -- | 1100 | 1.50 | -- | .27 |
| 21... | 210 | .5 | 13 | 1080 | -- | 1080 | 1.47 | .26 | .25 |
| 28... | 205 | .5 | 12 | 1080 | -- | 1070 | 1.47 | -- | .27 |
| DEC | | | | | | | | | |
| 05... | 185 | .6 | 11 | 1010 | -- | 994 | 1.37 | -- | .23 |
| 06... | -- | -- | -- | -- | -- | -- | -- | .22 | -- |
| 12... | 175 | .5 | 10 | 966 | -- | 953 | 1.31 | -- | .23 |
| 19... | 178 | .5 | 11 | 972 | -- | 968 | 1.32 | .25 | .20 |
| 27... | 205 | .5 | 12 | 1090 | -- | 1070 | 1.48 | -- | .25 |
| JAN | | | | | | | | | |
| 03... | 195 | .5 | 11 | 1050 | -- | 1040 | 1.43 | -- | .23 |
| 09... | 208 | .5 | 11 | 1090 | -- | 1080 | 1.48 | -- | .20 |
| 10... | -- | -- | -- | -- | -- | -- | -- | .30 | -- |
| 16... | 182 | .5 | 10 | 1010 | -- | 1000 | 1.37 | -- | .20 |
| 23... | 190 | .5 | 11 | 1030 | -- | 1020 | 1.40 | -- | .18 |
| 24... | -- | -- | -- | -- | -- | -- | -- | .17 | -- |
| 30... | 210 | .6 | 11 | 1100 | -- | 1090 | 1.50 | -- | .20 |
| FEB | | | | | | | | | |
| 06... | 195 | .6 | 11 | 1050 | -- | 1040 | 1.43 | -- | .27 |
| 07... | -- | -- | -- | -- | -- | -- | -- | .31 | -- |
| 13... | 192 | .5 | 11 | 1020 | -- | 1010 | 1.39 | -- | .23 |
| 21... | 168 | .5 | 11 | 910 | -- | 910 | 1.24 | .25 | .23 |
| 27... | 175 | .5 | 12 | 936 | -- | 930 | 1.27 | -- | .20 |
| MAR | | | | | | | | | |
| 06... | 175 | .6 | 11 | 954 | -- | 952 | 1.30 | -- | .29 |
| 07... | -- | -- | -- | -- | -- | -- | -- | .24 | -- |
| 13... | 170 | .5 | 11 | 924 | -- | 921 | 1.26 | -- | .36 |
| 20... | 150 | .4 | 10 | 870 | -- | 868 | 1.18 | -- | .27 |
| 21... | -- | -- | -- | -- | -- | -- | -- | .17 | -- |
| 27... | 138 | .5 | 9.5 | 836 | -- | 834 | 1.14 | -- | .20 |
| APR | | | | | | | | | |
| 03... | 142 | .5 | 8.8 | 852 | -- | 850 | 1.16 | -- | .11 |
| 10... | 140 | .5 | 11 | 850 | -- | 846 | 1.16 | -- | .14 |
| 11... | -- | -- | -- | -- | -- | -- | -- | .11 | -- |
| 17... | 142 | .4 | 8.0 | 854 | -- | 849 | 1.16 | -- | .11 |
| 24... | 142 | .5 | 9.5 | 858 | -- | 853 | 1.17 | -- | .11 |
| 25... | -- | -- | -- | -- | -- | -- | -- | .17 | -- |
| MAY | | | | | | | | | |
| 01... | 155 | .6 | 10 | 896 | -- | 897 | 1.22 | -- | .20 |
| 08... | 172 | .5 | 11 | 954 | -- | 952 | 1.30 | -- | .18 |
| 09... | -- | -- | -- | -- | 990 | -- | -- | .18 | -- |
| 15... | 182 | .5 | 10 | 992 | -- | 989 | 1.35 | -- | .18 |
| 22... | 170 | .6 | 11 | 946 | -- | 940 | 1.29 | -- | .27 |
| 23... | -- | -- | -- | -- | -- | -- | -- | .18 | -- |
| 30... | 180 | .6 | 10 | 990 | -- | 985 | 1.35 | -- | .20 |
| JUN | | | | | | | | | |
| 05... | 182 | .6 | 11 | 984 | -- | 986 | 1.34 | -- | .16 |
| 12... | 175 | .5 | 11 | 970 | -- | 967 | 1.32 | -- | .20 |
| 13... | -- | -- | -- | -- | -- | -- | -- | .27 | -- |
| 19... | 152 | .5 | 9.5 | 902 | -- | 903 | 1.23 | -- | .11 |
| 26... | 148 | .6 | 9.0 | 892 | -- | 891 | 1.21 | -- | .11 |
| JUL | | | | | | | | | |
| 03... | 148 | .5 | 9.2 | 886 | -- | 884 | 1.20 | -- | .14 |
| 10... | 148 | .5 | 9.5 | 884 | -- | 884 | 1.20 | .12 | .11 |
| 17... | 145 | .6 | 8.5 | 870 | -- | 869 | 1.18 | -- | .14 |
| 24... | 138 | .4 | 9.0 | 854 | -- | 852 | 1.16 | .14 | .16 |
| 31... | 142 | .6 | 9.8 | 860 | -- | 858 | 1.17 | -- | .11 |
| AUG | | | | | | | | | |
| 07... | 142 | .5 | 10 | 862 | -- | 860 | 1.17 | -- | .14 |
| 08... | -- | -- | -- | -- | -- | -- | -- | .11 | -- |
| 14... | 150 | .5 | 9.8 | 880 | -- | 883 | 1.20 | -- | .14 |
| 21... | 168 | .5 | 10 | 944 | -- | 941 | 1.28 | -- | .16 |
| 28... | 170 | .5 | 11 | 960 | -- | 957 | 1.31 | .14 | .14 |
| SEP | | | | | | | | | |
| 05... | 164 | .5 | 10 | 938 | -- | 936 | 1.28 | -- | .20 |
| 11... | 165 | .5 | 10 | 946 | -- | 941 | 1.29 | -- | .11 |
| 12... | -- | -- | -- | -- | -- | -- | -- | .22 | .25 |
| 18... | 172 | .5 | 11 | 964 | -- | 961 | 1.31 | -- | .20 |
| 25... | 168 | .5 | 11 | 958 | -- | 955 | 1.30 | .23 | .27 |

09522000 COLORADO RIVER AT NORTHERLY INTERNATIONAL BOUNDARY, ABOVE MORELOS DAM, NEAR ANDRADE, CA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | NITROGEN, NITRITE TOTAL (MG/L AS N) | NITROGEN, NITRITE DISSOLVED (MG/L AS N) | NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) | NITROGEN, AMMONIA TOTAL (MG/L AS N) | NITROGEN, ORGANIC TOTAL (MG/L AS N) | NITROGEN, TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | PHOSPHORUS, DISSOLVED (MG/L AS P) | PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 03... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 04... | .01 | .01 | .51 | .05 | .24 | .72 | .13 | -- | .10 |
| 11... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 17... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 18... | .01 | -- | -- | .05 | .52 | .91 | .11 | -- | -- |
| 25... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 31... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | | | | |
| 07... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 08... | .01 | .01 | .35 | .23 | .09 | .68 | .13 | .10 | .07 |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 21... | .01 | -- | -- | .21 | .26 | .74 | .08 | -- | -- |
| 28... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| DEC | | | | | | | | | |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 06... | .01 | .00 | .24 | .13 | .19 | .55 | .01 | -- | .01 |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 19... | .02 | -- | -- | .20 | .49 | .96 | .04 | -- | -- |
| 27... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JAN | | | | | | | | | |
| 03... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 09... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 10... | -- | .00 | -- | -- | .60 | 1.2 | -- | -- | -- |
| 16... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 23... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 24... | .01 | -- | -- | .14 | .20 | .52 | .09 | -- | -- |
| 30... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | | | | |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 07... | .01 | .01 | .31 | .18 | .36 | .86 | .11 | .09 | .07 |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 21... | .01 | -- | -- | .20 | .29 | .75 | .10 | -- | -- |
| 27... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MAR | | | | | | | | | |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 07... | .01 | .01 | .33 | .22 | .56 | 1.0 | .08 | -- | .01 |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 20... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 21... | .01 | -- | -- | .09 | .73 | 1.0 | .12 | -- | -- |
| 27... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| APR | | | | | | | | | |
| 03... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 10... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 11... | .01 | .01 | .20 | .09 | .78 | .99 | .07 | -- | .02 |
| 17... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 24... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 25... | .01 | -- | -- | .01 | .52 | .71 | .06 | -- | -- |
| MAY | | | | | | | | | |
| 01... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 08... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 09... | .01 | .01 | .25 | .13 | .45 | .77 | .11 | .05 | .06 |
| 15... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 22... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 23... | .02 | -- | -- | .10 | .55 | .85 | .07 | -- | -- |
| 30... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUN | | | | | | | | | |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 13... | .02 | .01 | .21 | .18 | .52 | .99 | .06 | -- | .04 |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 26... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | |
| 03... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 10... | .01 | .01 | .15 | .03 | .49 | .65 | .04 | -- | .01 |
| 17... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 24... | .01 | .01 | .18 | .00 | .52 | .67 | .04 | -- | .01 |
| 31... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | |
| 07... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 08... | .01 | .01 | .14 | .03 | .30 | .45 | .03 | .01 | .03 |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 21... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 28... | .01 | .01 | .22 | .09 | .23 | .47 | .07 | -- | .03 |
| SEP | | | | | | | | | |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 11... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 12... | .03 | .03 | .28 | .10 | .43 | .78 | .09 | -- | .04 |
| 18... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 25... | .02 | .03 | .28 | .08 | .87 | 1.2 | .06 | -- | .04 |

09522000 COLORADO RIVER AT NORTHERLY INTERNATIONAL BOUNDARY, ABOVE MORELOS DAM, NEAR ANDRADE, CA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | IRON, DIS-SOLVED (UG/L AS FE) | LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) | LEAD, DIS-SOLVED (UG/L AS PB) | MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) | MANGA-NESE, DIS-SOLVED (UG/L AS MN) | MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) | MERCURY DIS-SOLVED (UG/L AS HG) | SELE-NIUM, TOTAL (UG/L AS SE) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 04... | -- | -- | -- | -- | -- | -- | -- | -- |
| 18... | -- | -- | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | | | |
| 08... | 80 | 12 | 26 | 270 | 30 | .0 | .0 | 4 |
| 21... | -- | -- | -- | -- | -- | -- | -- | -- |
| DEC | | | | | | | | |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- |
| JAN | | | | | | | | |
| 24... | -- | -- | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | | | |
| 07... | 10 | 6 | 20 | 110 | 20 | .1 | .0 | 3 |
| 21... | -- | -- | -- | -- | -- | -- | -- | -- |
| MAR | | | | | | | | |
| 07... | -- | -- | -- | -- | -- | -- | -- | -- |
| 21... | -- | -- | -- | -- | -- | -- | -- | -- |
| APR | | | | | | | | |
| 11... | -- | -- | -- | -- | -- | -- | -- | -- |
| 25... | -- | -- | -- | -- | -- | -- | -- | -- |
| MAY | | | | | | | | |
| 09... | 60 | 11 | 3 | 130 | 20 | .0 | .1 | 2 |
| 23... | -- | -- | -- | -- | -- | -- | -- | -- |
| JUN | | | | | | | | |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- |
| JUL | | | | | | | | |
| 10... | -- | -- | -- | -- | -- | -- | -- | -- |
| 24... | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | |
| 08... | <10 | 6 | 0 | 80 | 7 | .0 | .0 | 2 |
| 28... | -- | -- | -- | -- | -- | -- | -- | -- |
| SEP | | | | | | | | |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- |
| 25... | -- | -- | -- | -- | -- | -- | -- | -- |

| DATE | SELE-NIUM, DIS-SOLVED (UG/L AS SE) | ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) | ZINC, DIS-SOLVED (UG/L AS ZN) | CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) | CARBON, ORGANIC DIS-SOLVED (MG/L AS C) | ARSENIC TOTAL (UG/L AS AS) | ARSENIC DIS-SOLVED (UG/L AS AS) | BORON, DIS-SOLVED (UG/L AS B) | CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 04... | -- | -- | -- | -- | -- | -- | -- | 280 | -- |
| 18... | -- | -- | -- | -- | -- | -- | -- | 290 | -- |
| NOV | | | | | | | | | |
| 08... | 3 | 40 | 20 | -- | -- | 4 | 3 | 270 | 1 |
| 21... | -- | -- | -- | -- | -- | -- | -- | 270 | -- |
| DEC | | | | | | | | | |
| 06... | -- | -- | -- | -- | -- | -- | -- | 240 | -- |
| 19... | -- | -- | -- | -- | -- | -- | -- | 230 | -- |
| JAN | | | | | | | | | |
| 24... | -- | -- | -- | -- | -- | -- | -- | 260 | -- |
| FEB | | | | | | | | | |
| 07... | 4 | 10 | 10 | .3 | 3.3 | 3 | 3 | 270 | 2 |
| 21... | -- | -- | -- | -- | -- | -- | -- | 210 | -- |
| MAR | | | | | | | | | |
| 07... | -- | -- | -- | -- | -- | -- | -- | 240 | -- |
| 21... | -- | -- | -- | -- | -- | -- | -- | 200 | -- |
| APR | | | | | | | | | |
| 11... | -- | -- | -- | -- | -- | -- | -- | 180 | -- |
| 25... | -- | -- | -- | -- | -- | -- | -- | 190 | -- |
| MAY | | | | | | | | | |
| 09... | 2 | 20 | 10 | .5 | 3.3 | 4 | 3 | 230 | 2 |
| 23... | -- | -- | -- | -- | -- | -- | -- | 260 | -- |
| JUN | | | | | | | | | |
| 13... | -- | -- | -- | -- | -- | -- | -- | 230 | -- |
| JUL | | | | | | | | | |
| 10... | -- | -- | -- | -- | -- | -- | -- | 200 | -- |
| 24... | -- | -- | -- | -- | -- | -- | -- | 200 | -- |
| AUG | | | | | | | | | |
| 08... | 2 | 10 | <3 | .1 | 4.1 | 3 | 2 | 210 | 0 |
| 28... | -- | -- | -- | -- | -- | -- | -- | 240 | -- |
| SEP | | | | | | | | | |
| 12... | -- | -- | -- | -- | -- | -- | -- | 210 | -- |
| 25... | -- | -- | -- | -- | -- | -- | -- | 240 | -- |

09522000 COLORADO RIVER AT NORTHERLY INTERNATIONAL BOUNDARY, ABOVE MORELOS DAM, NEAR ANDRADE, CA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | CADMIUM DIS-SOLVED (UG/L AS CD) | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) | CHRO-MIUM, DIS-SOLVED (UG/L AS CR) | COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) | COBALT, DIS-SOLVED (UG/L AS CO) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) | COPPER, DIS-SOLVED (UG/L AS CU) | IRON, TOTAL RECOV-ERABLE (UG/L AS FE) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 04... | -- | -- | -- | -- | -- | -- | -- | 530 |
| 18... | -- | -- | -- | -- | -- | -- | -- | 370 |
| NOV | | | | | | | | |
| 08... | 3 | 4 | 4 | 0 | 0 | 4 | 2 | 1300 |
| 21... | -- | -- | -- | -- | -- | -- | -- | 300 |
| DEC | | | | | | | | |
| 06... | -- | -- | -- | -- | -- | -- | -- | 430 |
| 19... | -- | -- | -- | -- | -- | -- | -- | 410 |
| JAN | | | | | | | | |
| 24... | -- | -- | -- | -- | -- | -- | -- | 410 |
| FEB | | | | | | | | |
| 07... | 2 | 0 | 0 | 0 | 0 | 3 | 2 | 430 |
| 21... | -- | -- | -- | -- | -- | -- | -- | 1100 |
| MAR | | | | | | | | |
| 07... | -- | -- | -- | -- | -- | -- | -- | 370 |
| 21... | -- | -- | -- | -- | -- | -- | -- | 540 |
| APR | | | | | | | | |
| 11... | -- | -- | -- | -- | -- | -- | -- | 510 |
| 25... | -- | -- | -- | -- | -- | -- | -- | 310 |
| MAY | | | | | | | | |
| 09... | 2 | 0 | 0 | 2 | 1 | 10 | 0 | 540 |
| 23... | -- | -- | -- | -- | -- | -- | -- | 660 |
| JUN | | | | | | | | |
| 13... | -- | -- | -- | -- | -- | -- | -- | 350 |
| JUL | | | | | | | | |
| 10... | -- | -- | -- | -- | -- | -- | -- | 550 |
| 24... | -- | -- | -- | -- | -- | -- | -- | 470 |
| AUG | | | | | | | | |
| 08... | <1 | 0 | 0 | 2 | <1 | 5 | 1 | 570 |
| 28... | -- | -- | -- | -- | -- | -- | -- | 270 |
| SEP | | | | | | | | |
| 12... | -- | -- | -- | -- | -- | -- | -- | 550 |
| 25... | -- | -- | -- | -- | -- | -- | -- | 490 |

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT) | GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT) | GROSS BETA, DIS-SOLVED (PCI/L AS CS-137) | GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90) | GROSS BETA, SUSP. TOTAL (PCI/L AS SR/YT-90) | RADIUM 226, DIS-SOLVED, RADON METHOD (PCI/L) | URANIUM NATURAL DIS-SOLVED (UG/L AS U) |
|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | |
| 08... | 0830 | <12 | <.4 | 6.2 | 5.8 | .9 | .09 | 3.6 |
| MAY | | | | | | | | |
| 09... | 0830 | <12 | .9 | 11 | 9.7 | 1.1 | .14 | -- |

< Actual value is known to be less than value shown.

09522000 COLORADO RIVER AT NORTHERLY INTERNATIONAL BOUNDARY, ABOVE MORELOS DAM, NEAR ANDRADE, CA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | PCB, TOTAL (UG/L) | PCB, TOTAL IN BOTTOM MATERIAL (UG/KG) | ALDRIN, TOTAL (UG/L) | ALDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) | ATRAZINE, TOTAL (UG/L) | CHLORDANE, TOTAL (UG/L) | CHLORDANE, TOTAL IN BOTTOM MATERIAL (UG/KG) | DDD, TOTAL (UG/L) | DDD, TOTAL IN BOTTOM MATERIAL (UG/KG) | DDE, TOTAL (UG/L) | DDE, TOTAL IN BOTTOM MATERIAL (UG/KG) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 04... | 0820 | .0 | -- | .00 | -- | -- | .0 | -- | .00 | -- | .00 | -- |
| NOV | | | | | | | | | | | | |
| 08... | 0835 | ND | -- | ND | -- | ND | ND | -- | ND | -- | ND | -- |
| FEB | | | | | | | | | | | | |
| 07... | 0840 | .0 | -- | .00 | -- | -- | .0 | -- | .00 | -- | .00 | -- |
| 07... | 0850 | ND | -- | ND | -- | ND | ND | -- | ND | -- | ND | -- |
| MAR | | | | | | | | | | | | |
| 07... | 0830 | .0 | -- | .00 | -- | -- | .0 | -- | .00 | -- | .00 | -- |
| APR | | | | | | | | | | | | |
| 11... | 0830 | .0 | -- | .00 | -- | -- | .0 | -- | .00 | -- | .00 | -- |
| MAY | | | | | | | | | | | | |
| 09... | 0830 | .0 | -- | .00 | -- | -- | .0 | -- | .00 | -- | .00 | -- |
| 09... | 0835 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| JUL | | | | | | | | | | | | |
| 11... | 0835 | .0 | -- | .00 | -- | -- | .0 | -- | .00 | -- | .00 | -- |
| AUG | | | | | | | | | | | | |
| 08... | 0830 | .0 | -- | .00 | -- | -- | .0 | -- | .00 | -- | .00 | -- |
| 08... | 0835 | ND | -- | ND | -- | ND | ND | -- | ND | -- | ND | -- |
| SEP | | | | | | | | | | | | |
| 12... | 0830 | .0 | -- | .00 | -- | -- | .0 | -- | .00 | -- | .00 | -- |

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | DDT, TOTAL (UG/L) | DDT, TOTAL IN BOTTOM MATERIAL (UG/KG) | DIAZINON, TOTAL (UG/L) | DIAZINON, TOTAL IN BOTTOM MATERIAL (UG/KG) | DIELDRIN TOTAL (UG/L) | DIELDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) | ENDRIN, TOTAL (UG/L) | ENDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) | ETHION, TOTAL (UG/L) | ETHION, TOTAL IN BOTTOM MATERIAL (UG/KG) | HEPTACHLOR, TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 04... | .00 | -- | .00 | -- | .00 | -- | .00 | -- | .00 | -- | .00 |
| NOV | | | | | | | | | | | |
| 08... | ND | -- | ND | -- | ND | -- | ND | -- | ND | -- | ND |
| FEB | | | | | | | | | | | |
| 07... | .00 | -- | .01 | -- | .00 | -- | .00 | -- | .00 | -- | .00 |
| 07... | ND | -- | ND | -- | ND | -- | ND | -- | ND | -- | ND |
| MAR | | | | | | | | | | | |
| 07... | .00 | -- | .01 | -- | .00 | -- | .00 | -- | .00 | -- | .00 |
| APR | | | | | | | | | | | |
| 11... | .00 | -- | .00 | -- | .00 | -- | .00 | -- | .00 | -- | .00 |
| MAY | | | | | | | | | | | |
| 09... | .00 | -- | .00 | -- | .00 | -- | .00 | -- | .00 | -- | .00 |
| 09... | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| JUL | | | | | | | | | | | |
| 11... | .00 | -- | .00 | -- | .00 | -- | .00 | -- | .00 | -- | .00 |
| AUG | | | | | | | | | | | |
| 08... | .00 | -- | .00 | -- | .00 | -- | .00 | -- | .00 | -- | .00 |
| 08... | ND | -- | ND | -- | ND | -- | ND | -- | ND | -- | ND |
| SEP | | | | | | | | | | | |
| 12... | .00 | -- | .00 | -- | .00 | -- | .00 | -- | .00 | -- | .00 |

ND Material specifically analyzed for but not detected.

09522000 COLORADO RIVER AT NORTHERLY INTERNATIONAL BOUNDARY, ABOVE MORELOS DAM, NEAR ANDRADE, CA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | HEPTACHLOR, TOTAL IN BOTTOM MATERIAL (UG/KG) | HEPTACHLOR EPOXIDE TOTAL (UG/L) | HEPTACHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG) | LINDANE TOTAL (UG/L) | LINDANE TOTAL IN BOTTOM MATERIAL (UG/KG) | MALATHION, TOTAL (UG/L) | MALATHION, TOTAL IN BOTTOM MATERIAL (UG/KG) | METHOXYCHLOR, TOTAL (UG/L) | METHOXYCHLOR, TOT. IN BOTTOM MATL. (UG/KG) | METHYL PARATHION, TOTAL (UG/L) | METHYL PARATHION, TOT. IN BOTTOM MATL. (UG/KG) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 04... | -- | .00 | -- | .00 | -- | .00 | -- | -- | -- | .00 | -- |
| NOV | | | | | | | | | | | |
| 08... | -- | ND | -- | ND | -- | ND | -- | ND | -- | ND | -- |
| FEB | | | | | | | | | | | |
| 07... | -- | .00 | -- | .00 | -- | .00 | -- | -- | -- | .00 | -- |
| 07... | -- | ND | -- | ND | -- | ND | -- | ND | -- | ND | -- |
| MAR | | | | | | | | | | | |
| 07... | -- | .00 | -- | .00 | -- | .00 | -- | -- | -- | .00 | -- |
| APR | | | | | | | | | | | |
| 11... | -- | .00 | -- | .00 | -- | .00 | -- | -- | -- | .00 | -- |
| MAY | | | | | | | | | | | |
| 09... | -- | .00 | -- | .00 | -- | .00 | -- | -- | -- | .00 | -- |
| 09... | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| JUL | | | | | | | | | | | |
| 11... | -- | .00 | -- | .00 | -- | .00 | -- | -- | -- | .00 | -- |
| AUG | | | | | | | | | | | |
| 08... | -- | .00 | -- | .00 | -- | .00 | -- | -- | -- | .00 | -- |
| 08... | -- | ND | -- | ND | -- | ND | -- | ND | -- | ND | -- |
| SEP | | | | | | | | | | | |
| 12... | -- | .00 | -- | .00 | -- | .00 | -- | -- | -- | .00 | -- |

| DATE | METHYL TRITHION, TOTAL (UG/L) | METHYL TRITHION, TOT. IN BOTTOM MATL. (UG/KG) | PARATHION, TOTAL (UG/L) | PARATHION, TOTAL IN BOTTOM MATERIAL (UG/KG) | TOXAPHENE, TOTAL (UG/L) | TOXAPHENE, TOTAL IN BOTTOM MATERIAL (UG/KG) | TOTAL TRITHION (UG/L) | TRITHION, TOTAL IN BOTTOM MATERIAL (UG/KG) | 2,4-D, TOTAL (UG/L) | 2,4,5-T TOTAL (UG/L) | SILVEX, TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 04... | .00 | -- | .00 | -- | 0 | -- | .00 | -- | .15 | .00 | .00 |
| NOV | | | | | | | | | | | |
| 08... | ND | -- | ND | -- | ND | -- | ND | -- | ND | ND | ND |
| FEB | | | | | | | | | | | |
| 07... | .00 | -- | .00 | -- | 0 | -- | .00 | -- | .01 | .00 | .00 |
| 07... | ND | -- | ND | -- | ND | -- | ND | -- | ND | ND | ND |
| MAR | | | | | | | | | | | |
| 07... | .00 | -- | .00 | -- | 0 | -- | .00 | -- | .00 | .00 | .00 |
| APR | | | | | | | | | | | |
| 11... | .00 | -- | .00 | -- | 0 | -- | .00 | -- | .00 | .00 | .00 |
| MAY | | | | | | | | | | | |
| 09... | .00 | -- | .00 | -- | 0 | -- | .00 | -- | .00 | .00 | .00 |
| 09... | ND | ND | ND | ND | ND | ND | ND | ND | -- | -- | -- |
| JUL | | | | | | | | | | | |
| 11... | .00 | -- | .00 | -- | 0 | -- | .00 | -- | .00 | .00 | .00 |
| AUG | | | | | | | | | | | |
| 08... | .00 | -- | .00 | -- | 0 | -- | .00 | -- | -- | -- | -- |
| 08... | ND | -- | ND | -- | ND | -- | ND | -- | -- | -- | -- |
| SEP | | | | | | | | | | | |
| 12... | .00 | -- | .00 | -- | 0 | -- | .00 | -- | .00 | .00 | .00 |

| DATE | TIME | PHYTOPLANKTON, TOTAL (CELLS PER ML) | PERIPHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M | PERIPHYTON BIOMASS ASH WEIGHT G/SQ M | CHLOROPHYLL A PHYTOPLANKTON, UNCORR. (UG/L) | CHLOROPHYLL B PHYTOPLANKTON, UNCORR. (UG/L) |
|---|---|---|---|---|---|---|
| NOV | | | | | | |
| 08... | 0830 | 2400 | 9.53 | 7.64 | -- | -- |
| FEB | | | | | | |
| 07... | 0840 | 5200 | -- | -- | 4.97 | .957 |
| MAY | | | | | | |
| 09... | 0830 | 5300 | 32.3 | 29.3 | 10.5 | 3.10 |
| JUN | | | | | | |
| 13... | 0830 | 980 | -- | -- | .000 | .000 |
| JUL | | | | | | |
| 11... | 0835 | 4200 | -- | -- | -- | -- |
| AUG | | | | | | |
| 08... | 0830 | 2100 | 60.0 | 54.9 | .000 | .000 |
| SEP | | | | | | |
| 12... | 0830 | 3900 | -- | -- | .000 | .000 |

ND Material specifically analyzed for but not detected.

09522000 COLORADO RIVER AT NORTHERLY INTERNATIONAL BOUNDARY,
ABOVE MORELOS DAM, NEAR ANDRADE, CA--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1750 | 1710 | 1680 | 1600 | 1670 | 1600 | 1340 | 1420 | 1550 | 1420 | 1370 | 1580 |
| 2 | 1800 | 1730 | 1650 | 1500 | 1510 | 1330 | 1350 | 1440 | 1570 | 1430 | 1360 | 1580 |
| 3 | 1820 | 1730 | 1650 | 1650 | 1650 | 1270 | 1350 | 1470 | 1570 | 1400 | 1370 | 1570 |
| 4 | 1770 | 1690 | 1560 | 1740 | 1610 | 1410 | 1340 | 1450 | 1580 | 1390 | 1360 | 1530 |
| 5 | 1790 | 1670 | 1570 | 1730 | 1630 | 1450 | 1350 | 1460 | 1560 | 1390 | 1360 | 1480 |
| 6 | 1780 | 1680 | 1520 | 1660 | 1640 | 1500 | 1310 | 1460 | 1550 | 1390 | 1370 | 1450 |
| 7 | 1770 | 1720 | 1490 | 1670 | 1680 | 1540 | 1340 | 1460 | 1520 | 1370 | 1360 | 1470 |
| 8 | 1780 | 1720 | 1470 | 1720 | 1690 | 1540 | 1330 | 1510 | 1510 | 1410 | 1370 | 1470 |
| 9 | 1760 | 1730 | 1470 | 1710 | 1740 | 1540 | 1370 | 1490 | 1490 | 1400 | 1360 | 1470 |
| 10 | 1750 | 1770 | 1470 | 1720 | 1660 | 1520 | 1340 | 1460 | 1560 | 1400 | 1370 | 1470 |
| 11 | 1750 | 1780 | 1490 | 1570 | 1630 | 1500 | 1330 | 1460 | 1550 | 1360 | 1350 | 1490 |
| 12 | 1790 | 1730 | 1510 | 1650 | 1620 | 1490 | 1330 | 1490 | 1530 | 1360 | 1360 | 1460 |
| 13 | 1760 | 1750 | 1490 | 1600 | 1600 | 1460 | 1320 | 1560 | 1520 | 1360 | 1380 | 1470 |
| 14 | 1780 | 1730 | 1490 | 1600 | 1570 | 1440 | 1330 | 1540 | 1470 | 1360 | 1400 | 1470 |
| 15 | 1780 | 1740 | 1490 | 1590 | 1520 | 1430 | 1350 | 1560 | 1450 | 1380 | 1390 | 1450 |
| 16 | 1780 | 1700 | 1500 | 1500 | 1490 | 1420 | 1390 | 1540 | 1470 | 1400 | 1400 | 1490 |
| 17 | 1790 | 1680 | 1480 | 1570 | 1540 | 1370 | 1350 | 1510 | 1460 | 1380 | 1400 | 1480 |
| 18 | 1840 | 1670 | 1480 | 1600 | 1470 | 1390 | 1350 | 1480 | 1480 | 1380 | 1410 | 1520 |
| 19 | 1770 | 1660 | 1530 | 1600 | 1510 | 1400 | 1360 | 1470 | 1430 | 1370 | 1450 | 1500 |
| 20 | 1760 | 1650 | 1500 | 1620 | 1520 | 1370 | 1360 | 1480 | 1430 | 1370 | 1450 | 1480 |
| 21 | 1770 | 1710 | 1490 | 1610 | 1440 | 1360 | 1350 | 1490 | 1400 | 1370 | 1490 | 1510 |
| 22 | 1710 | 1730 | 1490 | 1610 | 1460 | 1360 | 1350 | 1490 | 1400 | 1370 | 1470 | 1500 |
| 23 | 1720 | 1710 | 1490 | 1620 | 1470 | 1370 | 1370 | 1510 | 1370 | 1380 | 1450 | 1530 |
| 24 | 1690 | 1670 | 1520 | 1620 | 1470 | 1360 | 1350 | 1530 | 1410 | 1350 | 1460 | 1530 |
| 25 | 1700 | 1660 | 1580 | 1720 | 1490 | 1360 | 1370 | 1520 | 1450 | 1370 | 1490 | 1510 |
| 26 | 1660 | 1670 | 1610 | 1720 | 1490 | 1360 | 1400 | 1530 | 1410 | 1360 | 1510 | 1470 |
| 27 | 1640 | 1640 | 1690 | 1760 | 1470 | 1320 | 1420 | 1560 | 1390 | 1370 | 1530 | 1430 |
| 28 | 1670 | 1690 | 1620 | 1750 | 1460 | 1330 | 1460 | 1550 | 1360 | 1360 | 1510 | 1430 |
| 29 | 1680 | 1690 | 1400 | 1740 | --- | 1330 | 1470 | 1580 | 1390 | 1390 | 1500 | 1420 |
| 30 | 1700 | 1700 | 1490 | 1720 | --- | 1320 | 1430 | 1550 | 1400 | 1420 | 1490 | 1420 |
| 31 | 1700 | --- | 1520 | 1770 | --- | 1320 | --- | 1540 | --- | 1360 | 1500 | --- |
| MEAN | 1750 | 1710 | 1530 | 1660 | 1560 | 1410 | 1360 | 1500 | 1470 | 1380 | 1420 | 1490 |

WTR YR 1978 MEAN 1520 MAX 1840 MIN 1270

09522000 COLORADO RIVER AT NORTHERLY INTERNATIONAL BOUNDARY,
ABOVE MORELOS DAM, NEAR ANDRADE, CA--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

PHYTOPLANKTON

| DATE | NOV 8,77 | FEB 7,78 | MAY 9,78 | JUN 13,78 |
|---|---|---|---|---|
| TIME | 0830 | 0840 | 0830 | 0830 |
| TOTAL CELLS/ML | 2400 | 5200 | 5300 | 980 |
| DIVERSITY: DIVISION | 1.8 | 0.3 | 1.4 | 1.5 |
| .CLASS | 1.8 | 0.3 | 1.4 | 1.5 |
| ..ORDER | 2.5 | 0.4 | 2.0 | 1.9 |
| ...FAMILY | 3.2 | 0.5 | 2.2 | 2.3 |
| ....GENUS | 3.5 | 0.9 | 2.2 | 2.5 |

| ORGANISM | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT |
|---|---|---|---|---|---|---|---|---|
| CHLOROPHYTA (GREEN ALGAE) | | | | | | | | |
| .CHLOROPHYCEAE | | | | | | | | |
| ..CHLOROCOCCALES | | | | | | | | |
| ...COELASTRACEAE | | | | | | | | |
| ....COELASTRUM | -- | - | -- | - | -- | - | -- | - |
| ...MICRACTINIACEAE | | | | | | | | |
| ....GOLENKINIA | -- | - | 45 | 1 | -- | - | -- | - |
| ...OOCYSTACEAE | | | | | | | | |
| ....ANKISTRODESMUS | 72 | 3 | -- | - | -- | - | 15 | 1 |
| ....CHODATELLA | -- | - | -- | - | -- | - | -- | - |
| ....DICTYOSPHAERIUM | * | 0 | -- | - | -- | - | -- | - |
| ....FRANCEIA | -- | - | -- | - | -- | - | -- | - |
| ....KIRCHNERIELLA | 24 | 1 | -- | - | -- | - | -- | - |
| ....OOCYSTIS | 95 | 4 | -- | - | -- | - | -- | - |
| ....SELENASTRUM | -- | - | -- | - | -- | - | 180# | 18 |
| ...SCENEDESMACEAE | | | | | | | | |
| ....ACTINASTRUM | -- | - | -- | - | -- | - | -- | - |
| ....SCENEDESMUS | 170 | 7 | 45 | 1 | 880# | 17 | -- | - |
| ..TETRASPORALES | | | | | | | | |
| ...PALMELLACEAE | | | | | | | | |
| ....GLOEOCYSTIS | -- | - | -- | - | -- | - | -- | - |
| ..VOLVOCALES | | | | | | | | |
| ...CHLAMYDOMONADACEAE | | | | | | | | |
| ....CARTERIA | -- | - | -- | - | -- | - | -- | - |
| ....CHLAMYDOMONAS | 72 | 3 | 90 | 2 | -- | - | -- | - |
| ..ZYGNEMATALES | | | | | | | | |
| ...DESMIDIACEAE | | | | | | | | |
| ....COSMARIUM | -- | - | -- | - | -- | - | -- | - |
| ....STAURASTRUM | -- | - | -- | - | 34 | 1 | -- | - |
| CHRYSOPHYTA | | | | | | | | |
| .BACILLARIOPHYCEAE | | | | | | | | |
| ..PENNALES | | | | | | | | |
| ...NAVICULACEAE | | | | | | | | |
| ....ENTOMONEIS | -- | - | -- | - | -- | - | -- | - |
| ..CENTRALES | | | | | | | | |
| ...COSCINODISCACEAE | | | | | | | | |
| ....CYCLOTELLA | 160 | 6 | 4300# | 83 | 2200# | 42 | 120 | 12 |
| ....MELOSIRA | 520# | 22 | 540 | 10 | -- | - | 15 | 1 |
| ....STEPHANODISCUS | -- | - | -- | - | 34 | 1 | -- | - |
| ..PENNALES | | | | | | | | |
| ...ACHNANTHACEAE | | | | | | | | |
| ....ACHNANTHES | -- | - | -- | - | -- | - | -- | - |
| ....COCCONEIS | -- | - | -- | - | -- | - | 15 | 1 |
| ...CYMBELLACEAE | | | | | | | | |
| ....AMPHORA | * | 0 | -- | - | -- | - | -- | - |
| ....CYMBELLA | -- | - | -- | - | -- | - | -- | - |
| ...DIATOMACEAE | | | | | | | | |
| ....DIATOMA | 24 | 1 | -- | - | -- | - | -- | - |
| ...FRAGILARIACEAE | | | | | | | | |
| ....SYNEDRA | 120 | 5 | -- | - | 440 | 8 | 29 | 3 |
| ...GOMPHONEMATACEAE | | | | | | | | |
| ....GOMPHONEMA | -- | - | -- | - | -- | - | -- | - |
| ...NAVICULACEAE | | | | | | | | |
| ....DIPLONEIS | -- | - | -- | - | -- | - | 15 | 1 |
| ....NAVICULA | 110 | 4 | -- | - | 270 | 5 | 59 | 6 |
| ....PINNULARIA | -- | - | -- | - | -- | - | -- | - |
| ...NITZSCHIACEAE | | | | | | | | |
| ....NITZSCHIA | 110 | 4 | 90 | 2 | 100 | 2 | 160# | 16 |
| .CHRYSOPHYCEAE | | | | | | | | |
| ..CHRYSOMONADALES | | | | | | | | |
| ...OCHROMONADACEAE | | | | | | | | |
| ....OCHROMONAS | -- | - | -- | - | -- | - | -- | - |
| .XANTHOPHYCEAE | | | | | | | | |
| ..HETEROCOCCALES | | | | | | | | |
| ...CHLOROTHECIACEAE | | | | | | | | |
| ....OPHIOCYTIUM | -- | - | -- | - | -- | - | -- | - |
| CRYPTOPHYTA (CRYPTOMONADS) | | | | | | | | |
| .CRYPTOPHYCEAE | | | | | | | | |
| ..CRYPTOMONIDALES | | | | | | | | |
| ...CRYPTOCHRYSIDACEAE | | | | | | | | |
| ....CHROOMONAS | -- | - | -- | - | 34 | 1 | -- | - |
| ...CRYPTOMONODACEAE | | | | | | | | |
| ....CRYPTOMONAS | 24 | 1 | -- | - | -- | - | -- | - |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

09522000 COLORADO RIVER AT NORTHERLY INTERNATIONAL BOUNDARY,
ABOVE MORELOS DAM, NEAR ANDRADE, CA--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

PHYTOPLANKTON

| DATE | NOV 8,77 | | FEB 7,78 | | MAY 9,78 | | JUN 13,78 | |
|---|---|---|---|---|---|---|---|---|
| TIME | 0830 | | 0840 | | 0830 | | 0830 | |
| ORGANISM | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT |
| CYANOPHYTA (BLUE-GREEN ALGAE) | | | | | | | | |
| .CYANOPHYCEAE | | | | | | | | |
| ..CHROCCOCCALES | | | | | | | | |
| ...CHROCCOCCACEAE | | | | | | | | |
| ....ANACYSTIS | 130 | 5 | -- | - | -- | - | -- | - |
| ..HORMOGONALES | | | | | | | | |
| ...NOSTOCACEAE | | | | | | | | |
| ....ANABAENA | 140 | 6 | -- | - | -- | - | -- | - |
| ...OSCILLATORIACEAE | | | | | | | | |
| ....OSCILLATORIA | 520# | 22 | -- | - | 1300# | 24 | 380# | 39 |
| EUGLENOPHYTA (EUGLENOIDS) | | | | | | | | |
| .EUGLENOPHYCEAE | | | | | | | | |
| ..EUGLENALES | | | | | | | | |
| ...EUGLENACEAE | | | | | | | | |
| ....EUGLENA | 72 | 3 | -- | - | -- | - | -- | - |
| ....PHACUS | * | 0 | -- | - | -- | - | -- | - |
| ....TRACHELOMONAS | 24 | 1 | 45 | 1 | -- | - | -- | - |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

09522000 COLORADO RIVER AT NORTHERLY INTERNATIONAL BOUNDARY,
ABOVE MORELOS DAM, NEAR ANDRADE, CA--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

PHYTOPLANKTON

| DATE | JUL 11,78 | | AUG 8,78 | | SEP 12,78 | |
|---|---|---|---|---|---|---|
| TIME | 0835 | | 0830 | | 0830 | |
| TOTAL CELLS/ML | 4200 | | 2100 | | 3900 | |
| DIVERSITY: DIVISION | 1.2 | | 1.6 | | 1.0 | |
| .CLASS | 1.2 | | 1.6 | | 1.2 | |
| ..ORDER | 1.9 | | 2.1 | | 2.1 | |
| ...FAMILY | 2.3 | | 3.1 | | 2.7 | |
| ....GENUS | 2.3 | | 3.3 | | 3.0 | |
| ORGANISM | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT |
| CHLOROPHYTA (GREEN ALGAE) | | | | | | |
| .CHLOROPHYCEAE | | | | | | |
| ..CHLOROCOCCALES | | | | | | |
| ...COELASTRACEAE | | | | | | |
| ....COELASTRUM | 270 | 6 | 180 | 9 | -- | - |
| ...MICRACTINIACEAE | | | | | | |
| ....GOLENKINIA | -- | - | 44 | 2 | -- | - |
| ...OOCYSTACEAE | | | | | | |
| ....ANKISTRODESMUS | -- | - | 22 | 1 | 29 | 1 |
| ....CHODATELLA | 22 | 1 | 44 | 2 | 29 | 1 |
| ....DICTYOSPHAERIUM | -- | - | -- | - | 120 | 3 |
| ....FRANCEIA | -- | - | -- | - | 59 | 2 |
| ....KIRCHNERIELLA | 22 | 1 | -- | - | -- | - |
| ....OOCYSTIS | -- | - | -- | - | -- | - |
| ....SELENASTRUM | -- | - | -- | - | -- | - |
| ...SCENEDESMACEAE | | | | | | |
| ....ACTINASTRUM | -- | - | 180 | 9 | -- | - |
| ....SCENEDESMUS | 490 | 12 | 89 | 4 | 590# | 15 |
| ..TETRASPORALES | | | | | | |
| ...PALMELLACEAE | | | | | | |
| ....GLOEOCYSTIS | -- | - | -- | - | 120 | 3 |
| ..VOLVOCALES | | | | | | |
| ...CHLAMYDOMONADACEAE | | | | | | |
| ....CARTERIA | -- | - | 44 | 2 | 29 | 1 |
| ....CHLAMYDOMONAS | -- | - | 44 | 2 | 29 | 1 |
| ..ZYGNEMATALES | | | | | | |
| ...DESMIDIACEAE | | | | | | |
| ....CUSMARIUM | 22 | 1 | -- | - | -- | - |
| ....STAURASTRUM | -- | - | -- | - | -- | - |
| CHRYSOPHYTA | | | | | | |
| .BACILLARIOPHYCEAE | | | | | | |
| ..PENNALES | | | | | | |
| ...NAVICULACEAE | | | | | | |
| ....ENTOMONEIS | -- | - | -- | - | 88 | 2 |
| ..CENTRALES | | | | | | |
| ...COSCINODISCACEAE | | | | | | |
| ....CYCLOTELLA | 44 | 1 | 130 | 6 | 1700# | 42 |
| ....MELOSIRA | -- | - | -- | - | -- | - |
| ....STEPHANODISCUS | -- | - | -- | - | -- | - |
| ..PENNALES | | | | | | |
| ...ACHNANTHACEAE | | | | | | |
| ....ACHNANTHES | -- | - | -- | - | 88 | 2 |
| ....COCCONEIS | 22 | 1 | 44 | 2 | 29 | 1 |
| ...CYMBELLACEAE | | | | | | |
| ....AMPHORA | -- | - | 44 | 2 | 59 | 2 |
| ....CYMBELLA | 22 | 1 | -- | - | -- | - |
| ...DIATOMACEAE | | | | | | |
| ....DIATOMA | -- | - | 22 | 1 | -- | - |
| ...FRAGILARIACEAE | | | | | | |
| ....SYNEDRA | -- | - | -- | - | 29 | 1 |
| ...GOMPHONEMATACEAE | | | | | | |
| ....GOMPHONEMA | -- | - | 22 | 1 | -- | - |
| ...NAVICULACEAE | | | | | | |
| ....DIPLONEIS | -- | - | -- | - | -- | - |
| ....NAVICULA | 130 | 3 | 130 | 6 | 350 | 9 |
| ....PINNULARIA | -- | - | 22 | 1 | -- | - |
| ...NITZSCHIACEAE | | | | | | |
| ....NITZSCHIA | 220 | 5 | 220 | 11 | 350 | 9 |
| .CHRYSOPHYCEAE | | | | | | |
| ..CHRYSOMONADALES | | | | | | |
| ...OCHROMONADACEAE | | | | | | |
| ....OCHROMONAS | -- | - | -- | - | 88 | 2 |
| .XANTHOPHYCEAE | | | | | | |
| ..HETEROCOCCALES | | | | | | |
| ...CHLOROTHECIACEAE | | | | | | |
| ....OPHIOCYTIUM | -- | - | -- | - | 29 | 1 |
| CRYPTOPHYTA (CRYPTOMONADS) | | | | | | |
| .CRYPTOPHYCEAE | | | | | | |
| ..CRYPTOMONIDALES | | | | | | |
| ...CRYPTOCHRYSIDACEAE | | | | | | |
| ....CHROOMONAS | -- | - | -- | - | -- | - |
| ...CRYPTOMONODACEAE | | | | | | |
| ....CRYPTOMONAS | -- | - | -- | - | -- | - |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

09522000 COLORADO RIVER AT NORTHERLY INTERNATIONAL BOUNDARY,
ABOVE MORELOS DAM, NEAR ANDRADE, CA--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

PHYTOPLANKTON

| DATE | JUL 11,78 | | AUG 8,78 | | SEP 12,78 | |
|---|---|---|---|---|---|---|
| TIME | 0835 | | 0830 | | 0830 | |
| ORGANISM | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT |
| CYANOPHYTA (BLUE-GREEN ALGAE) | | | | | | |
| .CYANOPHYCEAE | | | | | | |
| ..CHROCOCCALES | | | | | | |
| ...CHROCOCCACEAE | | | | | | |
| ....ANACYSTIS | 930# | 22 | 44 | 2 | -- | - |
| ..HORMOGONALES | | | | | | |
| ...NOSTOCACEAE | | | | | | |
| ....ANABAENA | -- | - | -- | - | -- | - |
| ...OSCILLATORIACEAE | | | | | | |
| ....OSCILLATORIA | 2000# | 47 | 730# | 35 | 150 | 4 |
| EUGLENOPHYTA (EUGLENOIDS) | | | | | | |
| .EUGLENOPHYCEAE | | | | | | |
| ..EUGLENALES | | | | | | |
| ...EUGLENACEAE | | | | | | |
| ....EUGLENA | -- | - | -- | - | -- | - |
| ....PHACUS | -- | - | -- | - | -- | - |
| ....TRACHELOMONAS | 44 | 1 | -- | - | -- | - |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

## 09522200 COLORADO RIVER AT SOUTHERLY INTERNATIONAL BOUNDARY, NEAR SAN LUIS, AZ

LOCATION.--Lat 32°29'48", long 114°48'48", in Mexico, on right bank about 1,000 ft (300 m) upstream from southerly international boundary, 2 mi (3 km) west of San Luis, Ariz., and 21.9 mi (35.2 km), downstream from Morelos Dam.

DRAINAGE AREA.--246,700 $mi^2$ (639,000 $km^2$), approximately, including all closed basins entirely within the drainage boundary, also 3,959 $mi^2$ (10,254 $km^2$) in Great Divide basin in southern Wyoming (previously considered part of the Missouri River basin).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1950 to current year. Prior to October 1960, monthly discharge only published in WSP 1733.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to June 24, 1954, at site 1,100 ft (340 m) downstream at same datum. August 1956 to September 1966, supplementary water-stage recorders at various sites within 6 mi (10 km) upstream used to compute discharge during periods of backwater from diversion dike downstream.

REMARKS.--This record shows water passing southerly international boundary. Natural flow of stream affected by transmountain diversions, storage reservoirs, power developments, ground-water withdrawals and diversions for municipal use and irrigation, and return flow from irrigated areas.

COOPERATION.--Records furnished by International Boundary and Water Commission, U.S. Section (discharge figures rounded in accordance with Geological Survey standard practice).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 28,610 $ft^3/s$ (810 $m^3/s$) Dec. 18, 1952; maximum elevation, 84.84 ft (25.859 m) Nov. 29, 1957; no flow at times 1956-58, 1964-69, 1971-72, 1975, 1977-78.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,010 $ft^3/s$ (56.9 $m^3/s$) Mar. 3, elevation, 80.10 ft (24.414 m); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .00 | .00 | .00 | 850 | 439 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 2 | .00 | .00 | .00 | 766 | 460 | 512 | .00 | .00 | .00 | .00 | .00 | .00 |
| 3 | .00 | .00 | .00 | 679 | 362 | 1750 | .00 | .00 | .00 | .00 | .00 | .00 |
| 4 | .00 | .00 | .00 | 683 | 76 | 1370 | .00 | .00 | .00 | .00 | .00 | .00 |
| 5 | .00 | .00 | .00 | 594 | 48 | 195 | .00 | .00 | .00 | .00 | .00 | .00 |
| 6 | .00 | .00 | .00 | 719 | 57 | 87 | .00 | .00 | .00 | .00 | .00 | .00 |
| 7 | .00 | .00 | .00 | 677 | 173 | 61 | .00 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | 431 | 198 | 40 | .00 | .00 | .00 | .00 | .00 | .00 |
| 9 | .00 | .00 | .00 | 246 | 196 | 25 | .00 | .00 | .00 | .00 | .00 | .00 |
| 10 | .00 | .00 | .00 | 222 | 68 | 15 | .00 | .00 | .00 | .00 | .00 | .00 |
| 11 | .00 | .00 | .00 | 419 | 22 | 9.3 | .00 | .00 | .00 | .00 | .00 | .00 |
| 12 | .00 | .00 | .00 | 1060 | 14 | 6.3 | .00 | .00 | .00 | .00 | .00 | .00 |
| 13 | .00 | .00 | .00 | 1330 | 9.0 | 3.6 | .00 | .00 | .00 | .00 | .00 | .00 |
| 14 | .00 | .00 | .00 | 1350 | 95 | .40 | .00 | .00 | .00 | .00 | .00 | .00 |
| 15 | .00 | .00 | .00 | 1300 | 110 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 16 | .00 | .00 | .00 | 1210 | 16 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 17 | .00 | .00 | .00 | 1200 | 5.8 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 18 | .00 | .00 | .00 | 1150 | 1.8 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 19 | .00 | .00 | .00 | 1130 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 20 | .00 | .00 | .00 | 1110 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 21 | .00 | .00 | .00 | 937 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 22 | .00 | .00 | .00 | 896 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 23 | .00 | .00 | .00 | 832 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 24 | .00 | .00 | .00 | 790 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 25 | .00 | .00 | .00 | 676 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 26 | .00 | .00 | .00 | 380 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 27 | .00 | .00 | 34 | 242 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 28 | .00 | .00 | 242 | 72 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 29 | .00 | .00 | 732 | 50 | --- | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 30 | .00 | .00 | 1290 | 41 | --- | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 31 | .00 | --- | 887 | 313 | --- | .00 | --- | .00 | --- | .00 | .00 | --- |
| TOTAL | .00 | .00 | 3185.00 | 22355 | 2350.60 | 4074.60 | .00 | .00 | .00 | .00 | .00 | .00 |
| MEAN | .000 | .000 | 103 | 721 | 84.0 | 131 | .000 | .000 | .000 | .000 | .000 | .000 |
| MAX | .00 | .00 | 1290 | 1350 | 460 | 1750 | .00 | .00 | .00 | .00 | .00 | .00 |
| MIN | .00 | .00 | .00 | 41 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| AC-FT | .00 | .00 | 6320 | 44340 | 4660 | 8080 | .00 | .00 | .00 | .00 | .00 | .00 |

WTR YR 1978 TOTAL 31965.20 MEAN 87.6 MAX 1750 MIN .00 AC-FT 63400

09522200 COLORADO RIVER AT SOUTHERLY INTERNATIONAL BOUNDARY, NEAR SAN LUIS, AZ--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1968 to current year.

REMARKS.--Unpublished chemical analyses (continuing record) for water years 1962-68 available from district office in Tucson, Ariz. No flow for many days of most months.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 05... | 1115 | .00 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 21... | 0915 | .00 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | | | | | | | |
| 08... | 0915 | .00 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| DEC | | | | | | | | | | | | |
| 06... | 0930 | .00 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 20... | 1140 | .00 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JAN | | | | | | | | | | | | |
| 10... | 1515 | 286 | 1710 | 7.9 | 13.5 | 440 | 270 | 110 | 40 | 200 | 4.2 | 5.5 |
| 12... | 1230 | 1130 | 1620 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 24... | 1230 | 792 | 1620 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 31... | 1215 | 343 | 1720 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | | | | | | | |
| 14... | 1210 | 159 | 2160 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 17... | 1000 | 6.7 | 1800 | 8.4 | -- | 440 | 270 | 110 | 41 | 220 | 4.5 | 5.4 |
| MAR | | | | | | | | | | | | |
| 04... | 1600 | 1930 | 1310 | 7.8 | -- | 370 | 230 | 91 | 35 | 140 | 3.2 | 5.3 |
| 07... | 1230 | 54 | 1540 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| APR | | | | | | | | | | | | |
| 11... | 1030 | .00 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MAY | | | | | | | | | | | | |
| 12... | 1050 | .00 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUN | | | | | | | | | | | | |
| 13... | 1100 | .00 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | | | | |
| 11... | 1130 | .00 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 13... | 1000 | .00 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | | | | |
| 13... | 1000 | .00 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| SEP | | | | | | | | | | | | |
| 13... | 1000 | .00 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

| DATE | BICAR-BONATE (MG/L AS HCO3) | CAR-BONATE (MG/L AS CO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER AC-FT) | BORON, DIS-SOLVED (UG/L AS B) | IRON, DIS-SOLVED (UG/L AS FE) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 21... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | | | | | | |
| 08... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| DEC | | | | | | | | | | | |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 20... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JAN | | | | | | | | | | | |
| 10... | 210 | 0 | 400 | 210 | .6 | 16 | 1110 | 1090 | 1.51 | 270 | 10 |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 24... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 31... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | | | | | | |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 17... | 210 | 0 | 390 | 250 | .6 | 14 | 1150 | 1130 | 1.56 | 300 | 0 |
| MAR | | | | | | | | | | | |
| 04... | 170 | 0 | 350 | 140 | .5 | 9.4 | 836 | 855 | 1.14 | 190 | 10 |
| 07... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| APR | | | | | | | | | | | |
| 11... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MAY | | | | | | | | | | | |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUN | | | | | | | | | | | |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | | | |
| 11... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | | | |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| SEP | | | | | | | | | | | |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

Diversions at and below Imperial Dam, AZ-CA

Diversions for irrigation in the Gila Project in Arizona are made at Imperial Dam by the Gila Gravity Main Canal. Diversions for irrigation in the Yuma Project in Arizona and California are made at Imperial Dam by the All-American Canal. Between Imperial Dam and the international boundary secondary diversions from these principal canals are made to divisions of the Gila and Yuma Projects.

Return surface flows from irrigated areas enter the Colorado and Gila Rivers through many drains and wasteways in Arizona and California, or are delivered across the international boundary into Mexico. See p. 504 for records of return surface flows below Imperial Dam.

See figure 6 on p. 474 for a schematic diagram showing location of diversions and return flows.

09522500. GILA GRAVITY MAIN CANAL AT IMPERIAL DAM.--See daily table elsewhere in this report.

09522600. NORTH GILA MAIN CANAL.
LOCATION.--Water-stage recorder and sharp-crested weir in SW¼SW¼ sec.23, T.7 S., R.22 W., Hydrologic Unit 15030107, about 700 ft (200 m) downstream from turnout from Gila Gravity Main Canal and 1.2 mi (1.9 km) south of Laguna Dam.

PERIOD OF RECORD.--Monthly discharge October 1965 to current year.

REMARKS.--Record shows water available for irrigation of 5,956 acres (24.1 $km^2$) in 1977, in North Gila Valley.

09522650. NORTH GILA MAIN CANAL NO. 2.
LOCATION.--Water-stage recorder in SW¼NW¼ sec.11, T.8 S., R.22 W., Hydrologic Unit 15070201, at turnout from Gila Gravity Main Canal and 3.5 mi (5.6 km) downstream from turnout to North Gila Main Canal.

PERIOD OF RECORD.--Monthly discharge June 1969 to current year.

REMARKS.--Record shows water available for irrigation of land in North Gila Valley. Diversion began June 11, 1969.

09522700. WELLTON-MOHAWK CANAL.
LOCATION.--Two water-stage recorders, one above and one below gates, to record head on gates and recorders on both gates to record gate openings since June 1, 1974, in NW¼NE¼ sec.17, T.8 S., R.21 W., Hydrologic Unit 15070201, at turnout from Gila Gravity Main Canal.

PERIOD OF RECORD.--Monthly discharge October 1965 to current year.

REMARKS.--Record shows water available for irrigation of 60,622 acres (245 $km^2$) in 1977, in the Dome, Wellton, and Mohawk areas of the lower Gila Valley.

COOPERATION.--Supplementary record of gate openings furnished by Bureau of Reclamation.

09522800. SOUTH GILA MAIN CANAL.
LOCATION.--Vane meter and water-stage recorder in SE¼SW¼ sec.36, T.8 S., R.22 W., Hydrologic Unit 15070201, about 200 ft (61 m) downstream from turnout from Gila Gravity Main Canal. Also, Sparling flowmeter 150 ft (46 m) upstream.

PERIOD OF RECORD.--Monthly discharge October 1965 to current year.

REMARKS.--Record shows water available for irrigation of a portion of the 9,858 acres (39.9 $km^2$) in 1977, in South Gila Valley; additional diversions are made from Gila Gravity Main Canal to supply other portions of this same acreage.

COOPERATION.--Records furnished by Bureau of Reclamation prior to June 4, 1974.

09522850. GILA GRAVITY MAIN CANAL AT PUMPING PLANT.
LOCATION.--Intake consisting of 4 pumps in NE¼NW¼ sec.1, T.9 S., R.22 W., Hydrologic Unit 15070201, at end of Gila Gravity Main Canal and head of Yuma Mesa canals.

PERIOD OF RECORD.--Monthly discharge October 1965 to current year.

REMARKS.--Record shows water available for irrigation of 21,098 acres (85.4 $km^2$) in 1977, of which 17,797 acres (72.0 $km^2$) is on Yuma Mesa and remainder in Yuma Auxiliary Division of Yuma Valley listed under sta 09522900 below. Flow measured by rated pumps.

COOPERATION.--Records furnished by Bureau of Reclamation and Yuma Mesa Irrigation and Drainage District.

09522900. UNIT B MAIN CANAL.
LOCATION.--Two Sparling flowmeters in NW¼SW¼ sec.28, T.9 S., R.23 W., Hydrologic Unit 15030108, 5 mi (8 km) northeast of Somerton.

PERIOD OF RECORD.--Monthly discharge October 1965 to current year.

REMARKS.--Record shows water available for irrigation of 3,301 acres (13.4 $km^2$) in 1977, in Yuma Auxiliary Division of the Yuma Project. Sparling meters checked by occasional discharge measurements.

COOPERATION.--Records furnished by Bureau of Reclamation and Unit B Irrigation and Drainage District.

09523000. ALL-AMERICAN CANAL NEAR IMPERIAL DAM.--See daily table elsewhere in this report.

09523200. RESERVATION MAIN CANAL.
LOCATION.--Water-stage recorder and, since Sept. 5, 1975, gate-opening recorder, in NE¼NE¼ sec.35, T.15 S., R.23 E., Hydrologic Unit 15030107, San Bernardino meridian, at turnou from All-American Canal and 5.8 mi (9.3 km) downstream from Imperial Dam.

PERIOD OF RECORD.--Monthly discharge August 1950 to current year. Prior to October 1965 included in total diversions from All-American Canal and Yuma Main Canal above siphon-drop powerplant and published as part of sta 09524000.

REMARKS.--Record computed from rated gate on turnout from All-American Canal and shows water available for irrigation in parts of Reservation Division of Yuma Project in California.

COOPERATION.--Record of gate openings furnished by Bureau of Reclamation; these are used for comparison to recorder and for determining missing record on gate recorder.

09523400. TITSINK CANAL.
LOCATION.--Water-stage recorder and Parshall flume in NE¼SW¼ sec.27, T.15 S., R.23 E., Hydrologic Unit 15030107, San Bernardino meridian, 0.6 mi (1.0 km) downstream from turnout from All-American Canal and 7.2 mi (11.6 km) downstream from Imperial Dam.

PERIOD OF RECORD.--Monthly discharge August 1950 to current year. Prior to October 1965 included in total diversions from All-American Canal and Yuma Main Canal above siphon-drop powerplant and published as part of sta 09524000.

REMARKS.--Record shows water available for irrigation in parts of Reservation Division of Yuma Project in California.

09523600. YAQUI CANAL.
LOCATION.--Water-stage recorder and Parshall flume in NW¼SE¼ sec.31, T.15 S., R.23 E., Hydrologic Unit 15030107, San Bernardino meridian, 700 ft (200 m) downstream from turnout from All-American Canal and 11.1 mi (17.9 km) downstream from Imperial Dam.

PERIOD OF RECORD.--Monthly discharge June 1950 to current year. Prior to October 1965 included in total diversions from All-American Canal and Yuma Main Canal above siphon-drop powerplant and published as part of sta 09524000.

REMARKS.--Record shows water available for irrigation in parts of Reservation Division of Yuma Project in California.

09523800. PONTIAC CANAL.
LOCATION.--Water-stage recorder and Parshall flume in NW¼SW¼ sec.1, T.16 S., R.22 E., Hydrologic Unit 15030107, San Bernardino meridian 500 ft (150 m) downstream from turnout from All-American Canal and 13.1 mi (21.1 km) downstream from Imperial Dam.

PERIOD OF RECORD.--Monthly discharge August 1950 to current year. Prior to October 1965 included in total diversions from All-American Canal and Yuma Main Canal above siphon-drop powerplant and published as part of sta 09524000.

REMARKS.--Record shows water available for irrigation in parts of Reservation Division of Yuma Project in California.

09523900. WALAPAI CANAL.
LOCATION.--Water-stage recorder and sharp-crested weir in SE¼SE¼ sec.10, T.16 S., R.22 E., Hydrologic Unit 15030107, San Bernardino meridian, 100 ft (30 m) downstream from siphon-drop powerplant forebay and 4 mi (6 km) north of Yuma.

PERIOD OF RECORD.--Monthly discharge October 1946 to current year. Prior to October 1965 included in total diversions from All-American Canal and Yuma Main Canal above siphon-drop powerplant and published as part of sta 0924000.

REMARKS.--Record shows water available for irrigation in parts of Reservation Division of Yuma Project in California.

09524000. YUMA MAIN CANAL AT SIPHON-DROP POWERPLANT.--See daily table elsewhere in this report.

09524500. DIVERSIONS FROM YUMA MAIN CANAL BETWEEN SIPHON-DROP POWERPLANT AND YUMA MAIN CANAL WASTEWAY.
LOCATION.--Turnouts for several canals diverting from Yuma Main Canal between siphon-drop powerplant, 4 mi (6 km) north of Yuma, and Yuma Main Canal wasteway, 1,600 ft (500 m) upstream from Colorado River siphon.

PERIOD OF RECORD.--Monthly discharge October 1940 to current year. Prior to October 1947 published in WSP 1313. October 1947 to September 1965 published as supplemental table with records for Yuma Main Canal at siphon-drop powerplant.

REMARKS.--Record shows water available for irrigation in parts of Reservation Division of Yuma Project in California. Records estimated on basis of discharge measurements by Clausen-Pierce weir rule and occasional current-meter measurements.

COOPERATION.--Record furnished by Bureau of Reclamation.

09525500. YUMA MAIN CANAL BELOW COLORADO RIVER SIPHON.--See daily table elsewhere in this report.

09526000. DIVERSION FROM YUMA MAIN CANAL FOR MUNICIPAL SUPPLY FOR YUMA.
LOCATION.--Sparling flowmeters, in NW¼NE¼ sec.35, T.16 S., R.22 E., Hydrologic Unit 15030107, San Bernardino meridian, on pipeline about 1,000 ft (300 m) downstream from intake, which is at outlet of Colorado River siphon of Yuma Main Canal, on Arizona side of Colorado River at Yuma.

PERIOD OF RECORD.--Monthly discharge June 1945 to current year. Prior to October 1973 published as a supplemental table with records for Yuma Main Canal below Colorado River siphon.

REMARKS.--Record shows water for Yuma municipal supply; prior to 1962 was supplement only to total Yuma municipal supply. Figures shown in table herewith are also included in record for Yuma Main Canal below Colorado River siphon (sta 09525500). Capacity of pump used prior to August 1960 was about 12 $ft^3/s$ (0.34 $m^3/s$); combined capacity of three pumps used August 1960 to January 1975 is about 25 $ft^3/s$ (0.71 $m^3/s$); combined capacity of four pumps used since February 1975 is about 38 $ft^3/s$ (1.10 $m^3/s$). Two emergency pumps with combined capacity of about 27 $ft^3/s$ (0.76 $m^3/s$) can pump directly from the Colorado River. Emergency pumps last used Oct. 25, 1975. Relocated October 1977.

COOPERATION.--Records furnished by Yuma County Water Users' Association (prior to April 1955, by Arizona Public Service Co., and April 1955 to September 1965, by Arizona Water Co.).

09527500. ALL-AMERICAN CANAL BELOW PILOT KNOB WASTEWAY.--See daily table elsewhere in this report.

Diversions at and below Imperial Dam, AZ-CA--Continued

MONTHLY DIVERSIONS, IN ACRE-FEET, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| Month | North Gila Main Canal 09522600 | North Gila Main Canal No. 2 09522650 | Wellton-Mohawk Canal 09522700 | South Gila Main Canal 09522800 | Gila Gravity Main Canal at pumping plant 09522850 |
|---|---|---|---|---|---|
| October | 2,330 | 332 | 24,530 | 1,950 | 17,260 |
| November | 2,460 | 398 | 23,730 | 2,210 | 14,420 |
| December | 2,150 | 267 | 15,160 | 1,150 | 9,000 |
| CAL YR 1977 | 42,570 | 5,680 | 424,800 | 34,530 | 233,100 |
| January | 509 | 123 | 5,910 | 511 | 1,460 |
| February | 3,330 | 433 | 21,630 | 2,810 | 9,120 |
| March | 3,740 | 634 | 36,490 | 3,160 | 13,940 |
| April | 4,680 | 633 | 46,030 | 3,720 | 18,100 |
| May | 4,110 | 699 | 47,260 | 3,400 | 27,610 |
| June | 3,670 | 889 | 58,510 | 3,080 | 31,040 |
| July | 3,940 | 949 | 57,940 | 3,790 | 32,470 |
| August | 4,170 | 896 | 52,640 | 3,870 | 32,530 |
| September | 4,030 | 475 | 42,240 | 2,820 | 24,350 |
| WTR YR 1978 | 39,130 | 6,730 | 432,100 | 32,470 | 231,300 |

| Month | Unit B Main Canal 09522900 | Reservation Main Canal 09523200 | Titsink Canal 09523400 | Yaqui Canal 09523600 | Pontiac Canal 09523800 |
|---|---|---|---|---|---|
| October | 2,670 | 2,550 | 0 | 444 | 224 |
| November | 2,500 | 2,170 | 0 | 344 | 533 |
| December | 1,400 | 1,740 | 17 | 345 | 164 |
| CAL YR 1977 | 34,500 | 47,170 | 203 | 8,500 | 6,160 |
| January | 114 | 480 | 0.1 | 66 | 99 |
| February | 1,600 | 3,110 | 20 | 288 | 418 |
| March | 2,010 | 5,140 | 48 | 968 | 633 |
| April | 3,000 | 3,670 | 24 | 716 | 934 |
| May | 4,120 | 5,230 | 0 | 1,050 | 653 |
| June | 4,620 | 8,220 | 0 | 1,440 | 823 |
| July | 4,780 | 8,390 | 23 | 1,300 | 974 |
| August | 5,120 | 5,060 | 52 | 902 | 645 |
| September | 3,340 | 2,650 | 6.2 | 598 | 453 |
| WTR YR 1978 | 35,270 | 48,400 | 190 | 8,470 | 6,550 |

| Month | Walapai Canal 09523900 | Diversions from Yuma Main Canal 09524500 | Diversions from Yuma Main Canal for Yuma supply 09526000 |
|---|---|---|---|
| October | 317 | 2.4 | 1,092 |
| November | 224 | 13 | 913 |
| December | 267 | 174 | 772 |
| CAL YR 1977 | 10,730 | 4,670 | 13,748 |
| January | 120 | 84 | 686 |
| February | 607 | 562 | 601 |
| March | 1,400 | 811 | 838 |
| April | 1,120 | 534 | 1,069 |
| May | 1,050 | 254 | 1,384 |
| June | 2,490 | 892 | 1,441 |
| July | 1,910 | 937 | 1,839 |
| August | 838 | 639 | 1,757 |
| September | 682 | 808 | 1,552 |
| WTR YR 1978 | 11,030 | 5,710 | 13,944 |

Note.--Yearly totals given above have been computed from total cfs-days and may differ slightly from the summation of monthly total acre-feet on occasion.

## 09522500 GILA GRAVITY MAIN CANAL AT IMPERIAL DAM, AZ-CA

LOCATION.--Lat 32°52'34", long 114°27'18", in SE¼SW¼ sec.30, T.6 S., R.21 W., Gila and Salt River meridian, Yuma County, Hydrologic Unit 15030107, on right bank 3,200 ft (975 m) downstream from intake at east end of Imperial Dam.

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1943 to current year.

GAGE.--Water-stage recorder. Datum of gage is 160.00 ft (48.768 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records excellent except those below 100 $ft^3/s$ (2.8 $m^3/s$), which are fair. Gila Gravity Main Canal diverts water from Colorado River at left end of Imperial Dam for irrigation of lands in the Gila Project area in Arizona. Diversions to this canal began Aug. 17, 1943. Diversions to North Gila Valley from this canal began Dec. 16, 1954. During the 1977 calendar year, water was used for irrigation of 97,534 acres (395 $km^2$) divided as follows: North and South Gila Valleys, 15,814 acres (64.0 $km^2$); Mesa Unit, 17,797 acres (72.0 $km^2$); Wellton-Mohawk Division, 60,622 acres (245 $km^2$); Yuma Mesa Auxiliary Division, 3,301 acres (13.4 $km^2$).

AVERAGE DISCHARGE.--19 years (water years 1960-78), 1,205 $ft^3/s$ (34.13 $m^3/s$), 873,000 acre-ft/yr (1,080 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 2,240 $ft^3/s$ (63.4 $m^3/s$) May 25, 1965; no flow at canal intake at times in several years when intake gates were closed.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 676 | 804 | .00 | 17 | 420 | 664 | 1170 | 1570 | 1790 | 1480 | 1900 | 1570 |
| 2 | 721 | 711 | 189 | 185 | 433 | 641 | 757 | 1630 | 1690 | 1080 | 1880 | 1360 |
| 3 | 1080 | 837 | 886 | 273 | 323 | 358 | 1430 | 1660 | 1430 | 1790 | 1930 | 1090 |
| 4 | 1130 | 871 | 415 | 179 | 216 | 234 | 1200 | 1420 | 1010 | 1750 | 1880 | 1310 |
| 5 | 1340 | 665 | 573 | 200 | 232 | 335 | 1260 | 1400 | 1630 | 1860 | 1830 | 1640 |
| 6 | 983 | 523 | 556 | 259 | 994 | 719 | 1230 | 972 | 1610 | 2020 | 1480 | 1620 |
| 7 | 865 | 858 | 635 | 310 | 860 | 811 | 1220 | 834 | 1720 | 1940 | 1710 | 1580 |
| 8 | 410 | 943 | 567 | 200 | 892 | 1000 | 721 | 1370 | 1710 | 1980 | 1880 | 1460 |
| 9 | 274 | 977 | 499 | 464 | 868 | 928 | 535 | 1640 | 1840 | 1640 | 1900 | 1140 |
| 10 | 1010 | 785 | 388 | 352 | 872 | 1170 | 1320 | 1600 | 1870 | 1640 | 1930 | 1030 |
| 11 | 844 | 593 | 546 | 50 | 548 | 799 | 1310 | 1680 | 1470 | 1870 | 1890 | 1580 |
| 12 | 922 | 727 | 1030 | 13 | 339 | 668 | 1510 | 1450 | 1660 | 1860 | 1550 | 1610 |
| 13 | 930 | 690 | 1020 | 37 | 798 | 1140 | 1580 | 1360 | 1930 | 1840 | 1300 | 1620 |
| 14 | 949 | 1000 | 917 | 59 | 908 | 1270 | 1620 | 945 | 1910 | 1870 | 1820 | 1410 |
| 15 | 773 | 944 | 882 | 45 | 933 | 1500 | 1160 | 1490 | 1830 | 1570 | 1840 | 1460 |
| 16 | 634 | 1140 | 668 | 41 | 859 | 1180 | 1060 | 1520 | 1680 | 1350 | 1840 | 1130 |
| 17 | 937 | 1260 | 601 | 89 | 619 | 1140 | 1410 | 1440 | 1330 | 1890 | 1850 | 961 |
| 18 | 1070 | 1060 | 510 | 132 | 399 | 860 | 1650 | 1290 | 1340 | 2010 | 1700 | 1350 |
| 19 | 1060 | 871 | 788 | 141 | 344 | 627 | 1920 | 1510 | 1690 | 2060 | 1390 | 1370 |
| 20 | 989 | 771 | 1060 | 177 | 998 | 1530 | 1700 | 1440 | 1880 | 2110 | 891 | 1460 |
| 21 | 798 | 1430 | 1200 | 109 | 1060 | 1630 | 1570 | 1050 | 1930 | 2010 | 1400 | 1530 |
| 22 | 574 | 1660 | 760 | 183 | 1300 | 1680 | 986 | 1570 | 2040 | 1890 | 1550 | 1440 |
| 23 | 414 | 1330 | 434 | 199 | 1390 | 1520 | 658 | 1850 | 1980 | 1640 | 1570 | 1170 |
| 24 | 1000 | 1050 | 60 | 297 | 1210 | 910 | 1270 | 1690 | 1910 | 1880 | 1370 | 711 |
| 25 | 1020 | 806 | 33 | 291 | 925 | 520 | 1390 | 1630 | 1390 | 1930 | 1570 | 1080 |
| 26 | 875 | 39 | 152 | 129 | 668 | 384 | 1840 | 1700 | 2070 | 1870 | 1190 | 1290 |
| 27 | 945 | 4.8 | 325 | 181 | 1180 | 1310 | 1470 | 1180 | 2170 | 1620 | 683 | 1320 |
| 28 | 717 | .00 | 314 | 113 | 1120 | 1440 | 1610 | 875 | 2030 | 1730 | 1540 | 1200 |
| 29 | 606 | .00 | 312 | 193 | --- | 1540 | 1090 | 1500 | 2000 | 1430 | 1700 | 1340 |
| 30 | 465 | .00 | 152 | 414 | --- | 1610 | 872 | 1740 | 1800 | 1180 | 1680 | 990 |
| 31 | 746 | --- | 34 | 177 | --- | 1400 | --- | 1920 | --- | 1790 | 1580 | --- |
| TOTAL | 25757 | 23349.80 | 16506.00 | 5509 | 21708 | 31518 | 38519 | 44926 | 52340 | 54580 | 50224 | 39822 |
| MEAN | 831 | 778 | 532 | 178 | 775 | 1017 | 1284 | 1449 | 1745 | 1761 | 1620 | 1327 |
| MAX | 1340 | 1660 | 1200 | 464 | 1390 | 1680 | 1920 | 1920 | 2170 | 2110 | 1930 | 1640 |
| MIN | 274 | .00 | .00 | 13 | 216 | 234 | 535 | 834 | 1010 | 1080 | 683 | 711 |
| AC-FT | 51090 | 46310 | 32740 | 10930 | 43060 | 62520 | 76400 | 89110 | 103800 | 108300 | 99620 | 78990 |

CAL YR 1977 TOTAL 406283.80 MEAN 1113 MAX 2130 MIN .00 AC-FT 805900
WTR YR 1978 TOTAL 404758.80 MEAN 1109 MAX 2170 MIN .00 AC-FT 802800

09522500 GILA GRAVITY MAIN CANAL AT IMPERIAL DAM, AZ-CA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--January 1956 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: January 1956 to current year

INSTRUMENTATION.--Water temperature recorder since January 1956.

REMARKS.--Temperature probe above water surface Nov. 26 to Dec. 2. Unpublished chemical analyses (partial record) for water years 1965-67 available from district office in Tucson, Ariz. No flow Nov. 27 thru Dec. 1.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 33.0°C Aug. 29-31, 1970; minimum, 7.0°C Jan. 13-17, 1964, Jan. 4-7, 1971.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum, 30.0°C Sept. 3, 4, 5; minimum, 10.5°C Dec. 21, 22, 23.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 26... | 1120 | 828 | 1310 | 8.0 | 22.5 | 370 | 220 | 92 | 34 | 140 | 3.2 |
| JAN | | | | | | | | | | | |
| 18... | 1040 | 82 | 1530 | 8.0 | 14.0 | 400 | 250 | 100 | 37 | 180 | 3.9 |
| MAY | | | | | | | | | | | |
| 10... | 1030 | 1600 | 1240 | 8.0 | 23.0 | 370 | 220 | 92 | 34 | 130 | 2.9 |
| JUL | | | | | | | | | | | |
| 12... | 1040 | 1830 | 1250 | 7.9 | 27.5 | 350 | 220 | 89 | 32 | 130 | 3.0 |

| DATE | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | BICAR-BONATE (MG/L AS HCO3) | CAR-BONATE (MG/L AS CO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER AC-FT) | NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 26... | 5.3 | 180 | 0 | 340 | 130 | .5 | 10 | 865 | 841 | 1.18 | .06 |
| JAN | | | | | | | | | | | |
| 18... | 5.5 | 190 | 0 | 380 | 170 | .6 | 13 | 1020 | 981 | 1.39 | .28 |
| MAY | | | | | | | | | | | |
| 10... | 5.3 | 180 | 0 | 310 | 120 | .4 | 9.1 | 823 | 790 | 1.12 | .13 |
| JUL | | | | | | | | | | | |
| 12... | 5.1 | 160 | 0 | 330 | 130 | .4 | 9.6 | 806 | 806 | 1.10 | .09 |

09522500 GILA GRAVITY MAIN CANAL AT IMPERIAL DAM, AZ-CA--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DAY | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | OCTOBER | | NOVEMBER | | DECEMBER | | JANUARY | | FEBRUARY | | MARCH | |
| 1 | 26.0 | 25.0 | 20.5 | 20.5 | --- | --- | 14.5 | 14.5 | 15.5 | 14.5 | 16.5 | 16.0 |
| 2 | 25.5 | 25.0 | 20.5 | 20.0 | 15.0 | 15.0 | 14.5 | 14.5 | 16.0 | 15.5 | 16.0 | 16.0 |
| 3 | 25.0 | 24.5 | 20.0 | 19.5 | 15.0 | 14.5 | 14.5 | 14.0 | 16.0 | 16.0 | 16.0 | 16.0 |
| 4 | 24.5 | 24.5 | 19.5 | 19.5 | 14.5 | 14.5 | 14.0 | 13.5 | 16.0 | 16.0 | 16.5 | 16.0 |
| 5 | 25.0 | 24.5 | 19.5 | 19.5 | 14.5 | 14.5 | 14.0 | 13.5 | 16.0 | 16.0 | 16.5 | 16.5 |
| 6 | 25.0 | 25.0 | 19.5 | 19.5 | 14.5 | 14.5 | 14.0 | 13.5 | 16.0 | 16.0 | 17.0 | 16.5 |
| 7 | 25.0 | 24.5 | 19.5 | 18.5 | 14.5 | 14.5 | 14.0 | 14.0 | 16.5 | 16.0 | 16.0 | 17.0 |
| 8 | 25.5 | 25.0 | 16.5 | 18.0 | 15.0 | 14.5 | 14.0 | 14.0 | 16.5 | 16.5 | 16.5 | 18.0 |
| 9 | 25.5 | 25.5 | 16.0 | 16.5 | 15.0 | 15.0 | 14.0 | 14.0 | 17.0 | 16.5 | 18.5 | 18.5 |
| 10 | 26.0 | 25.5 | 16.5 | 16.5 | 15.0 | 15.0 | 14.0 | 13.5 | 17.0 | 16.5 | 16.5 | 18.0 |
| 11 | 26.0 | 26.0 | 16.5 | 16.0 | 15.0 | 15.0 | 13.5 | 13.0 | 17.0 | 16.5 | 16.0 | 18.0 |
| 12 | 26.0 | 25.0 | 16.0 | 16.0 | 15.0 | 15.0 | 13.5 | 13.0 | 16.5 | 15.5 | 16.0 | 17.0 |
| 13 | 25.0 | 24.5 | 16.0 | 16.0 | 15.0 | 14.5 | 14.0 | 13.5 | 15.5 | 15.5 | 17.0 | 16.5 |
| 14 | 24.5 | 24.0 | 16.0 | 16.0 | 14.5 | 14.0 | 14.0 | 14.0 | 15.5 | 15.0 | 17.0 | 16.5 |
| 15 | 24.0 | 24.0 | 16.0 | 16.0 | 14.0 | 14.0 | 14.0 | 14.0 | 15.0 | 15.0 | 17.5 | 17.0 |
| 16 | 24.0 | 24.0 | 16.5 | 16.0 | 14.0 | 14.0 | 14.0 | 14.0 | 15.0 | 15.0 | 16.0 | 17.5 |
| 17 | 24.0 | 24.0 | 16.5 | 16.5 | 14.0 | 13.5 | 14.0 | 14.0 | 15.0 | 14.5 | 18.0 | 18.0 |
| 18 | 24.0 | 24.0 | 16.5 | 16.5 | 13.5 | 13.0 | 14.5 | 14.0 | 14.5 | 14.5 | 16.0 | 18.0 |
| 19 | 24.0 | 24.0 | 16.5 | 16.5 | 13.0 | 12.0 | 14.5 | 14.5 | 14.5 | 14.5 | 16.5 | 18.0 |
| 20 | 24.0 | 24.0 | 16.5 | 16.0 | 12.0 | 11.0 | 14.5 | 14.5 | 15.0 | 14.5 | 18.5 | 18.5 |
| 21 | 24.0 | 23.0 | 16.0 | 15.5 | 11.0 | 10.5 | 15.0 | 14.5 | 15.0 | 14.5 | 19.5 | 18.5 |
| 22 | 23.0 | 23.0 | 15.5 | 15.0 | 11.0 | 10.5 | 15.0 | 14.5 | 15.5 | 15.0 | 20.0 | 19.5 |
| 23 | 23.0 | 23.0 | 15.0 | 14.5 | 11.0 | 10.5 | 14.5 | 14.5 | 16.0 | 15.5 | 19.5 | 19.5 |
| 24 | 23.0 | 23.0 | 14.5 | 14.5 | 12.0 | 11.0 | 14.5 | 14.0 | 16.0 | 16.0 | 19.5 | 19.5 |
| 25 | 23.0 | 23.0 | 14.5 | 14.5 | 12.0 | 12.0 | 14.0 | 13.5 | 16.5 | 16.0 | 19.5 | 19.5 |
| 26 | 23.0 | 23.0 | 14.5 | 14.5 | 13.0 | 12.0 | 13.5 | 13.0 | 16.5 | 16.5 | 20.0 | 19.5 |
| 27 | 23.0 | 23.0 | --- | --- | 14.0 | 13.5 | 13.0 | 13.0 | 16.5 | 16.5 | 19.5 | 19.5 |
| 28 | 23.0 | 22.0 | --- | --- | 14.5 | 14.0 | 13.0 | 13.0 | 16.5 | 16.5 | 19.5 | 19.5 |
| 29 | 22.0 | 22.0 | --- | --- | 15.0 | 14.5 | 13.0 | 13.0 | --- | --- | 20.0 | 19.5 |
| 30 | 22.0 | 22.0 | --- | --- | 15.5 | 15.0 | 13.5 | 13.0 | --- | --- | 19.5 | 19.0 |
| 31 | 22.0 | 21.0 | --- | --- | 15.0 | 15.0 | 14.0 | 13.5 | --- | --- | 19.0 | 19.0 |
| MONTH | 26.0 | 21.0 | 20.5 | 14.5 | 15.5 | 10.5 | 15.0 | 13.0 | 17.0 | 14.5 | 20.0 | 16.0 |

| DAY | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | APRIL | | MAY | | JUNE | | JULY | | AUGUST | | SEPTEMBER | |
| 1 | 19.0 | 19.0 | 21.0 | 19.5 | 25.0 | 25.0 | 25.5 | 25.5 | 29.0 | 28.5 | 29.0 | 28.5 |
| 2 | 19.0 | 19.0 | 19.5 | 19.0 | 25.0 | 24.5 | 25.5 | 25.5 | 28.5 | 28.5 | 29.5 | 29.0 |
| 3 | 19.0 | 18.5 | 20.5 | 19.0 | 25.0 | 24.5 | 26.0 | 25.5 | 26.5 | 28.5 | 30.0 | 29.5 |
| 4 | 19.0 | 18.5 | 21.5 | 20.5 | 25.5 | 24.5 | 25.5 | 25.5 | 26.5 | 28.5 | 30.0 | 30.0 |
| 5 | 19.0 | 18.5 | 21.5 | 21.0 | 25.5 | 25.0 | 25.5 | 25.5 | 29.0 | 28.5 | 30.0 | 29.0 |
| 6 | 18.5 | 18.5 | 21.5 | 21.0 | 25.5 | 25.0 | 25.5 | 25.5 | 29.0 | 29.0 | 29.0 | 28.0 |
| 7 | 16.5 | 18.5 | 21.0 | 21.0 | 25.5 | 25.0 | 26.0 | 25.5 | 29.0 | 29.0 | 28.0 | 27.0 |
| 8 | 16.5 | 18.5 | 21.0 | 21.0 | 26.5 | 25.5 | 26.5 | 26.0 | 29.0 | 29.0 | 27.0 | 27.0 |
| 9 | 18.5 | 18.5 | 22.0 | 21.0 | 28.0 | 26.5 | 27.5 | 26.5 | 29.0 | 29.0 | 27.0 | 26.0 |
| 10 | 16.5 | 18.0 | 22.0 | 22.0 | 26.0 | 27.0 | 27.5 | 27.0 | 29.0 | 29.0 | 26.0 | 25.5 |
| 11 | 19.0 | 18.5 | 22.0 | 21.5 | 27.0 | 26.5 | 27.5 | 27.0 | 29.0 | 28.5 | 25.5 | 25.5 |
| 12 | 20.0 | 19.0 | 23.5 | 22.0 | 26.5 | 26.5 | 27.5 | 27.0 | 26.5 | 27.5 | 25.5 | 25.5 |
| 13 | 20.5 | 19.5 | 24.5 | 23.5 | 26.5 | 26.0 | 27.5 | 27.0 | 28.0 | 27.5 | 25.5 | 25.5 |
| 14 | 20.5 | 20.0 | 24.5 | 24.5 | 26.5 | 26.5 | 26.0 | 27.5 | 26.0 | 27.0 | 25.5 | 24.5 |
| 15 | 20.5 | 20.0 | 24.5 | 24.0 | 26.5 | 26.0 | 26.0 | 28.0 | 27.0 | 27.0 | 25.0 | 24.5 |
| 16 | 20.5 | 20.0 | 24.0 | 23.0 | 25.5 | 25.5 | 29.0 | 28.0 | 27.0 | 26.5 | 24.5 | 24.5 |
| 17 | 20.0 | 19.0 | 23.0 | 21.5 | 26.0 | 25.5 | 29.0 | 28.5 | 26.5 | 26.0 | 24.5 | 24.0 |
| 18 | 19.5 | 19.0 | 21.5 | 21.5 | 26.5 | 25.5 | 26.5 | 28.5 | 26.0 | 25.5 | 24.5 | 23.5 |
| 19 | 19.5 | 19.0 | 22.0 | 21.5 | 27.0 | 26.5 | 29.0 | 28.5 | 26.5 | 25.5 | 23.5 | 21.5 |
| 20 | 20.0 | 19.5 | 23.0 | 21.5 | 27.0 | 26.5 | 29.0 | 28.5 | 26.5 | 26.5 | 21.5 | 21.5 |
| 21 | 20.0 | 19.5 | 24.0 | 23.0 | 27.0 | 26.5 | 28.5 | 28.5 | 27.0 | 26.5 | 21.5 | 21.0 |
| 22 | 19.5 | 19.5 | 24.0 | 24.0 | 27.0 | 26.5 | 26.5 | 28.5 | 28.0 | 27.0 | 21.5 | 20.0 |
| 23 | 20.5 | 19.5 | 24.0 | 23.5 | 28.0 | 27.0 | 26.5 | 28.5 | 28.0 | 27.0 | 23.5 | 21.5 |
| 24 | 20.5 | 20.5 | 23.5 | 23.0 | 26.0 | 28.0 | 28.5 | 28.5 | 27.0 | 26.5 | 25.5 | 23.0 |
| 25 | 21.0 | 20.0 | 23.0 | 22.0 | 28.0 | 27.0 | 28.5 | 28.5 | 26.5 | 26.0 | 25.5 | 25.0 |
| 26 | 21.0 | 20.5 | 22.0 | 22.0 | 27.0 | 26.0 | 28.5 | 28.5 | 26.0 | 25.5 | 25.5 | 25.0 |
| 27 | 21.0 | 20.5 | 23.5 | 22.0 | 26.0 | 25.5 | 29.0 | 28.5 | 26.0 | 26.0 | 25.5 | 25.5 |
| 28 | 21.0 | 20.5 | 24.0 | 23.0 | 25.5 | 25.5 | 29.5 | 29.0 | 27.0 | 26.0 | 26.0 | 25.5 |
| 29 | 21.0 | 21.0 | 24.5 | 24.0 | 25.5 | 25.5 | 29.5 | 29.5 | 27.0 | 27.0 | 26.5 | 26.0 |
| 30 | 21.0 | 21.0 | 25.0 | 24.5 | 25.5 | 25.5 | 29.5 | 29.5 | 28.0 | 27.0 | 26.5 | 26.0 |
| 31 | --- | --- | 25.0 | 24.5 | --- | --- | 29.5 | 29.0 | 28.5 | 28.0 | --- | --- |
| MONTH | 21.0 | 18.0 | 25.0 | 19.0 | 26.0 | 24.5 | 29.5 | 25.5 | 29.0 | 25.5 | 30.0 | 20.0 |
| YEAR | 30.0 | 10.5 | | | | | | | | | | |

## 09523000 ALL-AMERICAN CANAL NEAR IMPERIAL DAM, AZ-CA

LOCATION.--Lat 32°52'17", long 114°28'47", in SE¼NW¼ sec.17, T.15 S., R.24 E., San Bernardino meridian, in California, Imperial County, Hydrologic Unit 15030107, on left bank 6,000 ft (1,829 m) downstream from intake at west end of Imperial Dam and 13.7 mi (22.0 km) upstream from turnout to Yuma Main Canal.

PERIOD OF RECORD.--October 1938 to current year. Prior to October 1939 monthly discharge only, published in WSP 1313.

GAGE.--Water-stage recorder. Datum of gage is 150.00 ft (45.720 m) National Geodetic Vertical Datum of 1929 (subject to undetermined changes caused by earthquake of May 18, 1940). Since Aug. 21, 1952, auxiliary water-stage recorder 18.5 mi (29.8 km) downstream from base gage.

REMARKS.--Records excellent. All-American Canal diverts water from Colorado River at Imperial Dam. Water is used for power development and for irrigation in Yuma, Coachella, and Imperial Valleys. Water can be released back to the river through Pilot Knob powerplant and wasteway for power, regulatory purposes, or for downstream use in Mexico. First diversion to All-American Canal began October 1938, but prior to October 1940 was used only for priming canal.

COOPERATION.--Daily discharge figures furnished by Imperial Irrigation District (discharge figures reviewed in accordance with Geological Survey standard practice).

AVERAGE DISCHARGE.--37 years (water years 1942-78), 6,902 $ft^3/s$ (195.5 $m^3/s$), 5,000,000 acre-ft/yr (6,160 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 13,500 $ft^3/s$ (382 $m^3/s$), Apr. 16, 1958; no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 4710 | 3960 | 3720 | 1710 | 1670 | 4460 | 10100 | 8460 | 7320 | 8930 | 9240 | 6670 |
| 2 | 4770 | 3960 | 3880 | 1120 | 1890 | 3740 | 9660 | 8240 | 7710 | 8750 | 9490 | 6490 |
| 3 | 4730 | 3750 | 4080 | 1300 | 2220 | 3580 | 9620 | 7580 | 7270 | 8730 | 9330 | 6220 |
| 4 | 4770 | 3800 | 4160 | 1260 | 2200 | 3550 | 9790 | 7350 | 6400 | 8860 | 9360 | 5880 |
| 5 | 5020 | 3610 | 4510 | 1120 | 1970 | 3700 | 10200 | 6780 | 6510 | 9270 | 9310 | 5720 |
| 6 | 4940 | 3310 | 4670 | 1260 | 2410 | 3820 | 10200 | 6330 | 6760 | 9670 | 9310 | 5980 |
| 7 | 3930 | 3340 | 4820 | 1330 | 2830 | 4180 | 9930 | 5710 | 6990 | 9710 | 9570 | 6120 |
| 8 | 3890 | 3580 | 4690 | 1230 | 2950 | 4910 | 9690 | 6320 | 7600 | 9480 | 9760 | 6370 |
| 9 | 3660 | 3880 | 4760 | 1260 | 3840 | 5720 | 9270 | 6710 | 7410 | 9080 | 9900 | 6420 |
| 10 | 3670 | 4080 | 4560 | 1000 | 4200 | 6260 | 9720 | 7150 | 7170 | 9280 | 9740 | 6420 |
| 11 | 3880 | 3790 | 4370 | 796 | 3570 | 6900 | 10100 | 7110 | 6770 | 9810 | 9690 | 6750 |
| 12 | 3710 | 3300 | 4460 | 728 | 3850 | 6760 | 10300 | 6590 | 7100 | 9980 | 9700 | 6790 |
| 13 | 3690 | 3210 | 4660 | 849 | 4360 | 6840 | 10100 | 6380 | 7530 | 9910 | 9360 | 6930 |
| 14 | 3530 | 3480 | 4680 | 997 | 5170 | 7680 | 10100 | 6380 | 7690 | 9610 | 9120 | 6820 |
| 15 | 3580 | 3830 | 4890 | 1130 | 5530 | 8110 | 9970 | 6640 | 7710 | 9370 | 9260 | 6260 |
| 16 | 3410 | 3820 | 4860 | 930 | 5580 | 8600 | 9770 | 7240 | 7670 | 9210 | 9150 | 6400 |
| 17 | 3690 | 3780 | 4830 | 1110 | 6110 | 8920 | 10100 | 7420 | 7760 | 9410 | 9250 | 5890 |
| 18 | 4220 | 3440 | 4750 | 975 | 6540 | 9200 | 10300 | 7840 | 7440 | 9510 | 8960 | 5690 |
| 19 | 4510 | 3320 | 5030 | 1110 | 6360 | 9070 | 10800 | 7800 | 7730 | 9780 | 8690 | 5910 |
| 20 | 4340 | 2970 | 5130 | 1110 | 7140 | 9330 | 11000 | 7670 | 8160 | 9530 | 8240 | 6020 |
| 21 | 4270 | 3460 | 5170 | 1140 | 7390 | 9500 | 11100 | 7420 | 8740 | 9190 | 8310 | 6270 |
| 22 | 4520 | 3760 | 5170 | 1110 | 7440 | 9600 | 10600 | 7650 | 9200 | 9770 | 8250 | 6220 |
| 23 | 4450 | 3700 | 4390 | 1110 | 7920 | 9760 | 10100 | 7710 | 9060 | 9630 | 8380 | 6290 |
| 24 | 4150 | 3310 | 3360 | 1460 | 7620 | 9500 | 10400 | 7200 | 8720 | 9480 | 8240 | 5880 |
| 25 | 4330 | 3130 | 3330 | 1700 | 7490 | 8970 | 10600 | 6610 | 8280 | 9490 | 7950 | 5770 |
| 26 | 4520 | 3270 | 3420 | 2020 | 6900 | 8080 | 10500 | 6210 | 8160 | 9640 | 7870 | 6120 |
| 27 | 4540 | 3180 | 3080 | 2290 | 7270 | 7830 | 10200 | 5880 | 8510 | 9100 | 7730 | 6350 |
| 28 | 4110 | 3590 | 2870 | 2620 | 6290 | 9260 | 9670 | 5830 | 8920 | 8990 | 7530 | 6670 |
| 29 | 4290 | 3450 | 2530 | 2360 | --- | 9780 | 9220 | 6310 | 8660 | 9250 | 7650 | 6400 |
| 30 | 4000 | 3590 | 1950 | 2680 | --- | 9800 | 8840 | 6710 | 8720 | 8830 | 7660 | 6180 |
| 31 | 3940 | --- | 1920 | 1990 | --- | 10100 | --- | 7090 | --- | 8960 | 7550 | --- |
| TOTAL | 129770 | 106650 | 128700 | 42805 | 138710 | 227510 | 301950 | 216320 | 233670 | 290210 | 273550 | 187900 |
| MEAN | 4186 | 3555 | 4152 | 1381 | 4954 | 7339 | 10070 | 6978 | 7789 | 9362 | 8824 | 6263 |
| MAX | 5020 | 4080 | 5170 | 2680 | 7920 | 10100 | 11100 | 8460 | 9200 | 9980 | 9900 | 6930 |
| MIN | 3410 | 2970 | 1920 | 728 | 1670 | 3550 | 8840 | 5710 | 6400 | 8730 | 7530 | 5690 |
| AC-FT | 257400 | 211500 | 255300 | 84900 | 275100 | 451300 | 598900 | 429100 | 463500 | 575600 | 542600 | 372700 |

CAL YR 1977 TOTAL 2285700 MEAN 6262 MAX 10800 MIN 1920 AC-FT 4534000
WTR YR 1978 TOTAL 2277745 MEAN 6240 MAX 11100 MIN 728 AC-FT 4518000

## 09524000 YUMA MAIN CANAL AT SIPHON-DROP POWERPLANT, NEAR YUMA, AZ

LOCATION.--Lat 32°46'36", long 114°38'05", in SE¼SE¼ sec.10, T.16 S., R.22 E., San Bernardino meridian, in California, Imperial County, Hydrologic Unit 15030107, on right bank at downstream end of powerplant, 500 ft (150 m) from turnout from All-American Canal to Yuma Main Canal, 4.0 mi (6.4 km) north of Yuma, and 14.9 mi (24.0 km) downstream from intake of All-American Canal at Imperial Dam.

PERIOD OF RECORD.--July 1926 to current year. Prior to October 1938, monthly discharge only published in WSP 1313. Diversions from All-American Canal and Yuma Main Canal previously published with this record are listed separately in this report.

GAGE.--Water-stage recorder on forebay to determine head on rated bypass gates since Sept. 15, 1952. Recorders on gates to record gate opening since Nov. 8, 1973. Normal operating level of forebay of powerplant is 151.0 ft (46.02 m) National Geodetic Vertical Datum of 1929, or 150.3 ft (45.81 m) Yuma Project datum. Prior to Oct. 30, 1938, floating nonrecording gages on forebay and tailrace. Oct. 30, 1938, to Mar. 1, 1945, floating nonrecording gage on forebay and water-stage recorder on tailrace. Mar. 2, 1945, to Jan. 11, 1951, water-stage recorders on forebay and tailrace. Jan. 12, 1951, to Dec. 7, 1972, differential recorder to record head between forebay and tailrace prior to discontinuing powerplant operation.

REMARKS.--Records excellent except those between 100 and 300 $ft^3/s$ (2.8 and 8.5 $m^3/s$), which are good, and those below 100 $ft^3/s$ (2.8 $m^3/s$), which are poor. Discharge through bypass gates determined from relationship of forebay elevation and gate openings. Flow to Yuma Main Canal regulated by opening and closing bypass gates. Gates on All-American Canal open and close automatically to maintain a constant forebay elevation. Records of daily discharge show quantity of water diverted from All-American Canal to Yuma Main Canal, except that diverted from forebay of powerplant to Walapai Canal. (See sta 09523900.) Flow through turbines of powerplant was discontinued Dec. 8, 1972.

COOPERATION.--Supplementary record of gate openings furnished by Yuma County Water Users' Association.

EXTREMES.--1930 to current year: Maximum daily discharge, 2,040 $ft^3/s$ (57.8 $m^3/s$) Nov. 11, 1943; no flow for several days in 1937-39, 1945.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 399 | 638 | 910 | 44 | 129 | 161 | 494 | 480 | 1230 | 599 | 696 | 1080 |
| 2 | 457 | 662 | 1070 | 227 | 208 | 117 | 188 | 536 | 1310 | 443 | 737 | 963 |
| 3 | 463 | 376 | 212 | 235 | 452 | 148 | 163 | 1040 | 1220 | 616 | 623 | 929 |
| 4 | 445 | 318 | 124 | 158 | 381 | 136 | 257 | 857 | 959 | 695 | 590 | 750 |
| 5 | 527 | 184 | 149 | 84 | 269 | 88 | 329 | 754 | 1130 | 734 | 507 | 541 |
| 6 | 532 | 26 | 151 | 137 | 367 | 91 | 567 | 523 | 1130 | 825 | 404 | 679 |
| 7 | 460 | 26 | 182 | 140 | 442 | 118 | 531 | 472 | 1150 | 828 | 520 | 753 |
| 8 | 388 | 26 | 353 | 136 | 699 | 224 | 426 | 662 | 866 | 785 | 753 | 839 |
| 9 | 302 | 195 | 288 | 132 | 1130 | 634 | 328 | 841 | 929 | 616 | 801 | 785 |
| 10 | 296 | 590 | 164 | 84 | 1230 | 701 | 377 | 733 | 876 | 729 | 712 | 631 |
| 11 | 385 | 571 | 128 | 37 | 1150 | 664 | 609 | 709 | 792 | 859 | 688 | 682 |
| 12 | 452 | 437 | 138 | 72 | 978 | 489 | 748 | 687 | 759 | 840 | 561 | 732 |
| 13 | 373 | 334 | 252 | 80 | 277 | 414 | 769 | 879 | 791 | 820 | 268 | 775 |
| 14 | 344 | 406 | 318 | 64 | 335 | 510 | 676 | 782 | 852 | 767 | 253 | 828 |
| 15 | 410 | 558 | 397 | 44 | 500 | 625 | 466 | 979 | 810 | 654 | 280 | 746 |
| 16 | 387 | 579 | 344 | 46 | 582 | 631 | 134 | 1180 | 752 | 521 | 328 | 693 |
| 17 | 525 | 562 | 168 | 70 | 523 | 618 | 157 | 1090 | 659 | 601 | 613 | 624 |
| 18 | 669 | 376 | 71 | 54 | 430 | 591 | 318 | 962 | 329 | 698 | 613 | 588 |
| 19 | 623 | 194 | 120 | 72 | 209 | 270 | 456 | 830 | 400 | 808 | 479 | 682 |
| 20 | 625 | 188 | 164 | 55 | 309 | 249 | 729 | 827 | 512 | 860 | 249 | 660 |
| 21 | 576 | 440 | 248 | 24 | 412 | 337 | 669 | 781 | 584 | 829 | 235 | 697 |
| 22 | 571 | 657 | 406 | 24 | 478 | 345 | 524 | 911 | 825 | 722 | 249 | 697 |
| 23 | 560 | 618 | 257 | 75 | 687 | 523 | 416 | 992 | 822 | 640 | 305 | 887 |
| 24 | 558 | 459 | 138 | 87 | 726 | 554 | 532 | 1060 | 824 | 739 | 516 | 782 |
| 25 | 669 | 445 | 50 | 104 | 644 | 470 | 761 | 968 | 708 | 822 | 606 | 693 |
| 26 | 745 | 445 | 71 | 164 | 580 | 329 | 767 | 889 | 674 | 855 | 538 | 732 |
| 27 | 828 | 328 | 120 | 292 | 506 | 406 | 625 | 877 | 741 | 822 | 461 | 799 |
| 28 | 701 | 600 | 93 | 256 | 425 | 558 | 482 | 775 | 774 | 834 | 372 | 714 |
| 29 | 647 | 683 | 53 | 215 | --- | 756 | 411 | 925 | 738 | 801 | 416 | 667 |
| 30 | 641 | 729 | 28 | 418 | --- | 815 | 335 | 1080 | 706 | 590 | 458 | 689 |
| 31 | 568 | --- | 31 | 321 | --- | 758 | --- | 1240 | --- | 656 | 464 | --- |
| TOTAL | 16126 | 12650 | 7198 | 3951 | 15058 | 13330 | 14244 | 26321 | 24852 | 22608 | 15295 | 22317 |
| MEAN | 520 | 422 | 232 | 127 | 538 | 430 | 475 | 849 | 828 | 729 | 493 | 744 |
| MAX | 828 | 729 | 1070 | 418 | 1230 | 815 | 769 | 1240 | 1310 | 860 | 801 | 1080 |
| MIN | 296 | 26 | 28 | 24 | 129 | 88 | 134 | 472 | 329 | 443 | 235 | 541 |
| AC-FT | 31990 | 25090 | 14280 | 7840 | 29870 | 26440 | 28250 | 52210 | 49290 | 44840 | 30340 | 44270 |

CAL YR 1977 TOTAL 195278 MEAN 535 MAX 1500 MIN 26 AC-FT 387300
WTR YR 1978 TOTAL 193950 MEAN 531 MAX 1310 MIN 24 AC-FT 384700

## 09525000 YUMA MAIN CANAL WASTEWAY AT YUMA, AZ

LOCATION.--Lat 32°44'00", long 114°37'20", in SW¼SE¼ sec.26, T.16 S., R.22 E., San Bernardino meridian, in California, Imperial County, Hydrologic Unit 15030107, 45 ft (14 m) downstream from wasteway gates from Yuma Main Canal which are 1,645 ft (501 m) upstream from intake of Colorado River siphon on Yuma Main Canal, 0.5 mi (0.8 km) north of Yuma, and 3.2 mi (5.1 km) downstream from siphon-drop powerplant on Yuma Main Canal.

PERIOD OF RECORD.--April 1913 to current year. Monthly discharge only for some periods, published in WSP 1313.

GAGE.--Water-stage recorder for low flows only, with supplementary recorder on wasteway gate. Datum of gage is 122.51 ft (37.341 m) National Geodetic Vertical Datum of 1929. Prior to Apr. 1, 1968, gate-opening record used for low flows only.

REMARKS.--Records good except those below 150 $ft^3/s$ (4.2 $m^3/s$), which are fair. The wasteway discharges into Colorado River in SW¼ sec.26, T.16 S., R.22 E., 1,000 ft (300 m) upstream from station on Colorado River below Yuma Main Canal wasteway at Yuma. Discharges above 100 $ft^3/s$ (2.8 $m^3/s$) are generally computed as difference between discharge of Yuma Main Canal at siphon-drop powerplant and Yuma Main Canal below Colorado River siphon, with deductions for small irrigation diversions from canal between these stations. Discharges below 100 $ft^3/s$ (2.8 $m^3/s$) are generally computed from stage-discharge relation. Records do not include flow of Reservation Main Drain No. 4.

EXTREMES.--1930 to current year: Maximum daily discharge, 2,020 $ft^3/s$ (57.2 $m^3/s$) Dec. 24, 25, 1948; no flow for several days in 1937-39, 1945, 1950, 1971.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 128 | 284 | 640 | 38 | 15 | 20 | 14 | 16 | 445 | 13 | 15 | 680 |
| 2 | 177 | 282 | 806 | 159 | 16 | 20 | 14 | 50 | 606 | 14 | 15 | 550 |
| 3 | 169 | 46 | 14 | 155 | 119 | 24 | 13 | 493 | 637 | 14 | 15 | 584 |
| 4 | 95 | 25 | 14 | 90 | 110 | 19 | 13 | 325 | 665 | 14 | 15 | 433 |
| 5 | 112 | 26 | 14 | 21 | 116 | 19 | 13 | 303 | 849 | 14 | 15 | 183 |
| 6 | 99 | 70 | 14 | 19 | 233 | 19 | 13 | 235 | 845 | 14 | 15 | 177 |
| 7 | 106 | 5.8 | 14 | 19 | 289 | 19 | 12 | 261 | 743 | 14 | 15 | 198 |
| 8 | 137 | 2.9 | 14 | 20 | 407 | 19 | 13 | 282 | 7.4 | 14 | 15 | 323 |
| 9 | 131 | 4.9 | 15 | 19 | 569 | 20 | 14 | 278 | 8.5 | 14 | 15 | 318 |
| 10 | 134 | 96 | 15 | 24 | 713 | 20 | 13 | 174 | 9.8 | 14 | 15 | 195 |
| 11 | 127 | 205 | 15 | 19 | 724 | 21 | 13 | 184 | 12 | 15 | 15 | 219 |
| 12 | 188 | 199 | 16 | 20 | 618 | 26 | 14 | 243 | 13 | 14 | 15 | 253 |
| 13 | 169 | 190 | 16 | 24 | 26 | 19 | 19 | 479 | 16 | 15 | 15 | 246 |
| 14 | 191 | 262 | 17 | 22 | 18 | 19 | 16 | 460 | 15 | 14 | 15 | 235 |
| 15 | 206 | 313 | 17 | 22 | 18 | 18 | 16 | 515 | 13 | 15 | 15 | 175 |
| 16 | 149 | 291 | 17 | 23 | 17 | 18 | 16 | 547 | 11 | 15 | 15 | 189 |
| 17 | 153 | 324 | 18 | 24 | 19 | 18 | 16 | 458 | 11 | 15 | 15 | 195 |
| 18 | 211 | 246 | 18 | 28 | 20 | 18 | 16 | 401 | 11 | 15 | 15 | 205 |
| 19 | 208 | 70 | 18 | 26 | 19 | 18 | 16 | 386 | 10 | 15 | 14 | 227 |
| 20 | 233 | 99 | 21 | 24 | 19 | 18 | 16 | 383 | 10 | 15 | 14 | 159 |
| 21 | 235 | 305 | 17 | 24 | 19 | 18 | 16 | 385 | 11 | 14 | 15 | 184 |
| 22 | 268 | 386 | 16 | 24 | 19 | 17 | 15 | 367 | 11 | 15 | 15 | 199 |
| 23 | 296 | 386 | 16 | 24 | 19 | 18 | 14 | 380 | 13 | 15 | 16 | 318 |
| 24 | 354 | 363 | 16 | 25 | 19 | 16 | 15 | 386 | 13 | 15 | 15 | 342 |
| 25 | 381 | 369 | 16 | 23 | 19 | 16 | 15 | 290 | 13 | 15 | 15 | 279 |
| 26 | 361 | 278 | 16 | 23 | 19 | 16 | 15 | 339 | 13 | 15 | 15 | 227 |
| 27 | 413 | 157 | 16 | 96 | 19 | 16 | 15 | 436 | 13 | 15 | 15 | 225 |
| 28 | 383 | 362 | 17 | 84 | 19 | 15 | 15 | 402 | 14 | 14 | 15 | 226 |
| 29 | 359 | 390 | 17 | 103 | --- | 15 | 15 | 422 | 14 | 14 | 15 | 250 |
| 30 | 365 | 421 | 21 | 231 | --- | 14 | 15 | 438 | 13 | 15 | 14 | 279 |
| 31 | 286 | --- | 21 | 168 | --- | 14 | --- | 432 | --- | 15 | 47 | --- |
| TOTAL | 6824 | 6458.6 | 1922 | 1621 | 4237 | 567 | 440 | 10750 | 5065.7 | 449 | 495 | 8273 |
| MEAN | 220 | 215 | 62.0 | 52.3 | 151 | 18.3 | 14.7 | 347 | 169 | 14.5 | 16.0 | 276 |
| MAX | 413 | 421 | 806 | 231 | 724 | 26 | 19 | 547 | 849 | 15 | 47 | 680 |
| MIN | 95 | 2.9 | 14 | 19 | 15 | 14 | 12 | 16 | 7.4 | 13 | 14 | 159 |
| AC-FT | 13540 | 12810 | 3810 | 3220 | 8400 | 1120 | 873 | 21320 | 10050 | 891 | 982 | 16410 |

CAL YR 1977 TOTAL 49294.6 MEAN 135 MAX 806 MIN 2.9 AC-FT 97780
WTR YR 1978 TOTAL 47102.3 MEAN 129 MAX 849 MIN 2.9 AC-FT 93430

## 09525500 YUMA MAIN CANAL BELOW COLORADO RIVER SIPHON, AT YUMA, AZ

LOCATION.--Two gages, one at each end of canal siphon passing under Colorado River. At intake, lat 32°43'49", long 114°37'09", in NE¼NE¼ sec.35, T.16 S., R.22 E., San Bernardino meridian, in California, Imperial County, Hydrologic Unit 15030107, on left bank 1,645 ft (501 m) downstream from center of Yuma Main Canal wasteway gates and 3.5 mi (5.6 km) downstream from siphon-drop powerplant. At outlet, in NW¼NE¼ sec.35, T.16 S., R.22 E., San Bernardino meridian, in Arizona, Yuma County, on right bank. Siphon crossing is 1,500 ft (457 m) downstream from upper highway bridge over Colorado River at Yuma.

PERIOD OF RECORD.--January 1924 to current year. Prior to October 1938, monthly discharge only published in WSP 1313. Diversion from Yuma Main Canal for municipal supply for Yuma (sta 09526000), published with this record prior to October 1973, is listed separately in this report.

REVISED RECORDS.--WSP 1713: 1958, 1959 (Yuma municipal supply).

GAGE.--Water-stage recorder at each end of siphon. Datum of each gage is 100.62 ft (30.669 m) National Geodetic Vertical Datum of 1929, or 100.08 ft (30.504 m) Yuma Project datum. Prior to Oct. 1, 1963, at datum 0.05 ft (0.015 m) lower. Elevation of sill of inlet is 125.5 ft (38.25 m) NGVD. Prior to Oct. 29, 1938, nonrecording gages at approximately same sites, read simultaneously.

REMARKS.--Records excellent except those between 100 and 300 $ft^3/s$ (2.8 and 8.5 $m^3/s$), which are good, and those below 100 $ft^3/s$ (2.8 $m^3/s$), which are poor. Daily discharge computed from relation between discharge and head on siphon, which is the difference between intake and outlet gages. Records show quantity of water delivered through Colorado River siphon for irrigation of 45,700 acres (185 $km^2$) in 1977, in the Valley Division of the Yuma Project and for supplementary municipal supply for city of Yuma (see sta 09526000).

AVERAGE DISCHARGE.--54 years, 465 $ft^3/s$ (13.17 $m^3/s$), 336,900 acre-ft/yr (415 $hm^3/yr$).

EXTREMES.--1930 to current year: Maximum daily discharge, 948 $ft^3/s$ (26.8 $m^3/s$) Aug. 16, 1962; no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 271 | 354 | 270 | 41 | 108 | 172 | 471 | 461 | 765 | 581 | 665 | 400 |
| 2 | 280 | 380 | 264 | 68 | 196 | 114 | 172 | 478 | 698 | 424 | 680 | 411 |
| 3 | 293 | 332 | 258 | 80 | 313 | 134 | 159 | 547 | 582 | 578 | 572 | 338 |
| 4 | 350 | 293 | 134 | 68 | 264 | 130 | 233 | 552 | 292 | 643 | 538 | 307 |
| 5 | 415 | 203 | 134 | 68 | 153 | 76 | 307 | 451 | 270 | 708 | 468 | 351 |
| 6 | 433 | 69 | 134 | 112 | 134 | 71 | 510 | 288 | 270 | 815 | 363 | 497 |
| 7 | 354 | 20 | 180 | 112 | 153 | 114 | 468 | 211 | 392 | 809 | 458 | 550 |
| 8 | 251 | 20 | 327 | 112 | 292 | 210 | 388 | 375 | 827 | 747 | 690 | 504 |
| 9 | 171 | 27 | 282 | 112 | 561 | 595 | 307 | 553 | 898 | 596 | 737 | 445 |
| 10 | 162 | 494 | 153 | 92 | 517 | 640 | 365 | 547 | 841 | 701 | 670 | 411 |
| 11 | 258 | 363 | 114 | 56 | 426 | 583 | 556 | 520 | 752 | 811 | 650 | 438 |
| 12 | 264 | 258 | 124 | 56 | 358 | 437 | 655 | 444 | 718 | 773 | 541 | 452 |
| 13 | 204 | 144 | 244 | 56 | 282 | 384 | 683 | 400 | 745 | 764 | 280 | 494 |
| 14 | 153 | 144 | 308 | 56 | 341 | 481 | 630 | 322 | 808 | 713 | 240 | 559 |
| 15 | 204 | 245 | 384 | 68 | 498 | 591 | 449 | 464 | 763 | 606 | 250 | 547 |
| 16 | 238 | 288 | 298 | 58 | 564 | 596 | 123 | 625 | 698 | 499 | 310 | 484 |
| 17 | 372 | 238 | 143 | 41 | 511 | 583 | 135 | 625 | 612 | 563 | 660 | 411 |
| 18 | 458 | 130 | 56 | 56 | 433 | 553 | 298 | 561 | 312 | 674 | 655 | 372 |
| 19 | 415 | 124 | 112 | 56 | 225 | 288 | 411 | 444 | 351 | 771 | 495 | 445 |
| 20 | 392 | 89 | 138 | 56 | 313 | 238 | 652 | 444 | 478 | 842 | 245 | 491 |
| 21 | 341 | 134 | 199 | 68 | 396 | 298 | 608 | 392 | 561 | 813 | 232 | 504 |
| 22 | 303 | 270 | 335 | 56 | 454 | 303 | 475 | 544 | 783 | 701 | 245 | 491 |
| 23 | 264 | 232 | 220 | 56 | 650 | 498 | 376 | 612 | 801 | 629 | 308 | 553 |
| 24 | 204 | 96 | 112 | 72 | 687 | 529 | 471 | 670 | 794 | 695 | 526 | 431 |
| 25 | 288 | 76 | 56 | 92 | 617 | 458 | 688 | 678 | 673 | 758 | 620 | 407 |
| 26 | 384 | 166 | 80 | 141 | 526 | 322 | 705 | 550 | 657 | 800 | 570 | 494 |
| 27 | 415 | 171 | 103 | 196 | 461 | 396 | 582 | 433 | 725 | 762 | 475 | 564 |
| 28 | 318 | 238 | 80 | 162 | 400 | 538 | 452 | 363 | 738 | 744 | 384 | 478 |
| 29 | 288 | 293 | 68 | 112 | --- | 721 | 380 | 488 | 711 | 706 | 430 | 407 |
| 30 | 276 | 308 | 56 | 184 | --- | 781 | 307 | 622 | 683 | 510 | 471 | 400 |
| 31 | 282 | --- | 56 | 138 | --- | 744 | --- | 788 | --- | 566 | 396 | --- |
| TOTAL | 9301 | 6179 | 5422 | 2701 | 10833 | 12578 | 13016 | 15432 | 19198 | 21302 | 14824 | 13636 |
| MEAN | 300 | 206 | 175 | 87.1 | 387 | 406 | 434 | 498 | 640 | 687 | 478 | 455 |
| MAX | 458 | 494 | 384 | 196 | 687 | 781 | 705 | 788 | 898 | 842 | 737 | 564 |
| MIN | 153 | 20 | 56 | 41 | 108 | 71 | 123 | 211 | 270 | 424 | 232 | 307 |
| AC-FT | 18450 | 12260 | 10750 | 5360 | 21490 | 24950 | 25820 | 30610 | 38080 | 42250 | 29400 | 27050 |

CAL YR 1977 TOTAL 144024 MEAN 395 MAX 883 MIN 20 AC-FT 285700
WTR YR 1978 TOTAL 144422 MEAN 396 MAX 898 MIN 20 AC-FT 286500

## 09527000 PILOT KNOB POWERPLANT AND WASTEWAY NEAR PILOT KNOB, CA

LOCATION.--Lat 32°44'15", long 114°42'56", in NW¼SW¼ sec.25, T.16 S., R.21 E., San Bernardino meridian, Imperial County, Hydrologic Unit 15030107, 2 mi (3 km) east of summit of Pilot Knob, 6 mi (10 km) west of Yuma, Ariz., and 20.8 mi (33.5 km) downstream from intake of All-American Canal at Imperial Dam.

PERIOD OF RECORD.--February 1939 to current year. Prior to October 1943 monthly discharge only, published in WSP 1313. Prior to October 1956, published as Pilot Knob wasteway near Pilot Knob.

GAGE.--Totalizing flowmeter on each turbine. In addition, water-stage recorder in forebay on right bank of All-American Canal (also used as auxiliary gage for sta 09527500); tailrace gage with remote recorder logged hourly in control house; calibrated wicket gates for turbine flow and calibrated bypass gates for wasteway flow which are logged for each change. Datum of forebay staff gage is 150.00 ft (45.720 m); that of tailrace staff gage is 0.00 ft (0.000 m); elevation of sill of bypass gates is 147.88 ft (45.074 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records excellent above 1,200 $ft^3/s$ (34.0 $m^3/s$) and good below. Daily discharge computed from flowmeter equipment or from head and gate openings on wicket gates. Records show water released through Pilot Knob powerplant and wasteway from All-American Canal and returned to Colorado River through Rockwood gates. Pilot Knob wasteway completed in summer of 1938 and first flow occurred Feb. 5, 1939. Pilot Knob powerplant was completed in January 1957 and first flow occurred Jan. 14, 1957. See table below for monthly return flow by Pilot Knob wasteway only.

COOPERATION.--Midnight readings of flowmeter, recorder graph of forebay, and record of tailrace elevation and gate openings furnished by Imperial Irrigation District.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 8,350 $ft^3/s$ (236 $m^3/s$) Jan. 26, 1958; no flow for long periods.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .00 | .00 | .00 | 963 | .00 | 1850 | 2600 | 1460 | .00 | 1350 | 2320 | .00 |
| 2 | .00 | .00 | 39 | .00 | .00 | 1950 | 2630 | 1100 | .00 | 1870 | 2380 | .00 |
| 3 | .00 | .00 | 1060 | .00 | .00 | 1750 | 2830 | .00 | .00 | 2050 | 2590 | .00 |
| 4 | .00 | .00 | 1310 | .00 | .00 | 1590 | 2840 | .00 | .00 | 2080 | 2680 | .00 |
| 5 | .00 | .00 | 1330 | .00 | .00 | 1750 | 2920 | .00 | .00 | 2090 | 2670 | .00 |
| 6 | .00 | .00 | 1420 | .00 | .00 | 1600 | 3000 | .00 | .00 | 2260 | 2660 | .00 |
| 7 | .00 | .00 | 1380 | .00 | .00 | 1420 | 2970 | .00 | .00 | 2310 | 2580 | .00 |
| 8 | .00 | .00 | 1400 | .00 | .00 | 1420 | 3120 | .00 | 1030 | 2190 | 2490 | .00 |
| 9 | .00 | .00 | 1480 | .00 | .00 | 1540 | 3110 | .00 | 1140 | 1940 | 2500 | .00 |
| 10 | .00 | .00 | 1480 | .00 | .00 | 1650 | 3240 | .00 | 1110 | 2010 | 2520 | .00 |
| 11 | .00 | .00 | 1630 | .00 | .00 | 1930 | 3280 | .00 | 1060 | 2230 | 2510 | 33 |
| 12 | .00 | .00 | 1580 | .00 | 43 | 1880 | 3010 | .00 | 1100 | 2280 | 2490 | .00 |
| 13 | .00 | .00 | 1500 | .00 | 1030 | 2000 | 3040 | .00 | 1140 | 2340 | 2500 | .00 |
| 14 | .00 | .00 | 1470 | .00 | 1390 | 2040 | 3130 | .00 | 1270 | 2300 | 2230 | .00 |
| 15 | .00 | .00 | 1560 | .00 | 1490 | 1960 | 3240 | .00 | 1240 | 2350 | 2280 | .00 |
| 16 | .00 | .00 | 1620 | .00 | 1520 | 1870 | 3240 | .00 | 1220 | 2280 | 2240 | .00 |
| 17 | .00 | .00 | 1580 | .00 | 1660 | 1890 | 3260 | .00 | 1330 | 2310 | 2160 | .00 |
| 18 | .00 | .00 | 1650 | .00 | 1760 | 1900 | 3220 | .00 | 1320 | 2320 | 2100 | .00 |
| 19 | .00 | .00 | 1680 | .00 | 1750 | 1940 | 3220 | .00 | 1410 | 2250 | 2000 | .00 |
| 20 | .00 | .00 | 1670 | .00 | 1880 | 2210 | 3180 | .00 | 1400 | 2310 | 1930 | .00 |
| 21 | .00 | .00 | 1640 | .00 | 1870 | 2180 | 3220 | .00 | 1380 | 2350 | 1930 | .00 |
| 22 | .00 | .00 | 1650 | .00 | 1860 | 2170 | 3240 | .00 | 1460 | 2380 | 1740 | .00 |
| 23 | .00 | .00 | 1600 | .00 | 1890 | 2370 | 3290 | .00 | 1480 | 2320 | 1590 | .00 |
| 24 | .00 | .00 | 1590 | .00 | 1700 | 2430 | 3260 | .00 | 1490 | 2350 | 1500 | .00 |
| 25 | .00 | .00 | 1480 | .00 | 1760 | 2510 | 3060 | .00 | 1550 | 2350 | 1450 | .00 |
| 26 | .00 | .00 | 1490 | .00 | 1810 | 2560 | 2810 | .00 | 1560 | 2310 | 1370 | .00 |
| 27 | .00 | .00 | 1500 | .00 | 1910 | 1830 | 2600 | .00 | 1700 | 2390 | 1360 | .00 |
| 28 | .00 | .00 | 1500 | .00 | 1870 | 2420 | 2290 | .00 | 1720 | 2420 | 1400 | .00 |
| 29 | .00 | .00 | 1300 | .00 | --- | 2550 | 1940 | .00 | 1650 | 2390 | 1380 | .00 |
| 30 | .00 | .00 | 1070 | .00 | --- | 2360 | 1660 | .00 | 1530 | 2350 | 1300 | .00 |
| 31 | .00 | --- | 1150 | .00 | --- | 2410 | --- | .00 | --- | 2040 | 1010 | --- |
| TOTAL | .00 | .00 | 42809.00 | 963.00 | 27193.00 | 61930 | 88450 | 2560.00 | 31290.00 | 68770 | 63860 | 33.00 |
| MEAN | .000 | .000 | 1381 | 31.1 | 971 | 1998 | 2948 | 82.6 | 1043 | 2218 | 2060 | 1.10 |
| MAX | .00 | .00 | 1680 | 963 | 1910 | 2560 | 3290 | 1460 | 1720 | 2420 | 2680 | 33 |
| MIN | .00 | .00 | .00 | .00 | .00 | 1420 | 1660 | .00 | .00 | 1350 | 1010 | .00 |
| AC-FT | .00 | .00 | 84910 | 1910 | 53940 | 122800 | 175400 | 5080 | 62060 | 136400 | 126700 | 65 |
| (*) | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 24 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1976 | | | | | | | | | | | * 61† |
| WTR YR 1977 | | | | | | | | | | | *371† |
| CAL YR 1977 | TOTAL | 381533.00 | MEAN | 1045 | MAX | 7780 | MIN | .00 | AC-FT | 756800 | *371 |
| WTR YR 1978 | TOTAL | 387858.00 | MEAN | 1063 | MAX | 3290 | MIN | .00 | AC-FT | 769300 | * 24 |

* Return flow in acre-feet, by Pilot Knob Wasteway (included in daily discharge table).
† Not previously published.

## 09527500 ALL-AMERICAN CANAL BELOW PILOT KNOB WASTEWAY, CA

LOCATION.--Lat 32°44'07", long 114°43'23", in NW¼SE¼ sec.26, T.16 S., R.21 E., San Bernardino meridian, Imperial County, Hydrologic Unit 15030107, on left bank 0.4 mi (0.6 km) downstream from Pilot Knob wasteway, 6 mi (10 km) west of Yuma, Ariz., 15 mi (24 km) upstream from turnout to Coachella Canal, and 21.2 mi (34.1 km) downstream from intake at Imperial Dam.

PERIOD OF RECORD.--October 1961 to current year.

GAGE.--Water-stage recorder. Datum of gage is 150.00 ft (45.720 m) National Geodetic Vertical Datum of 1929. Auxiliary water-stage recorder on right bank 0.4 mi (0.6 km) upstream used to determine head on Pilot Knob check gates (also used as forebay gage for sta 09527000, Pilot Knob powerplant and wasteway). Datum of auxiliary gage is 150.00 ft (45.720 m) NGVD.

REMARKS.--Records excellent. Water is used for power development at three sites below station, and for irrigation in Coachella and Imperial Valleys.

COOPERATION.--Gage-height record and log of gate operation furnished by Imperial Irrigation District.

AVERAGE DISCHARGE.--17 years, 4,697 $ft^3/s$ (133.0 $m^3/s$), 3,403,000 acre-ft/yr (4,200 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 7,610 $ft^3/s$ (216 $m^3/s$) April 27, 28, 1976; no flow Jan. 4, 1977

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 4090 | 3250 | 2730 | 709 | 1400 | 2180 | 6660 | 6440 | 5770 | 6550 | 5940 | 5330 |
| 2 | 4090 | 3210 | 2730 | 789 | 1510 | 1420 | 6400 | 6560 | 5970 | 6130 | 6040 | 5230 |
| 3 | 4040 | 3240 | 2580 | 996 | 1730 | 1380 | 6330 | 6460 | 5780 | 5960 | 5860 | 5010 |
| 4 | 4090 | 3270 | 2550 | 1010 | 1810 | 1560 | 6320 | 6380 | 5300 | 5980 | 5920 | 4890 |
| 5 | 4230 | 3120 | 2760 | 1010 | 1620 | 1550 | 6590 | 5900 | 5320 | 6260 | 5940 | 4830 |
| 6 | 4240 | 2910 | 2810 | 1020 | 1860 | 1810 | 6420 | 5660 | 5480 | 6370 | 6010 | 4980 |
| 7 | 3430 | 3080 | 2970 | 1140 | 2190 | 2370 | 6120 | 5140 | 5530 | 6400 | 6170 | 5050 |
| 8 | 3420 | 3320 | 2680 | 1060 | 2120 | 3000 | 5920 | 5390 | 5390 | 6360 | 6260 | 5200 |
| 9 | 3210 | 3450 | 2710 | 1070 | 2510 | 3320 | 5600 | 5600 | 5100 | 6380 | 6390 | 5320 |
| 10 | 3190 | 3350 | 2620 | 986 | 2660 | 3680 | 5780 | 6050 | 4900 | 6340 | 6290 | 5450 |
| 11 | 3290 | 3100 | 2340 | 794 | 2230 | 4070 | 5960 | 6070 | 4620 | 6500 | 6240 | 5700 |
| 12 | 3100 | 2740 | 2470 | 647 | 2600 | 4140 | 6260 | 5650 | 4980 | 6560 | 6360 | 5770 |
| 13 | 3120 | 2740 | 2660 | 753 | 2680 | 4290 | 6120 | 5280 | 5350 | 6490 | 6280 | 5810 |
| 14 | 2960 | 2900 | 2670 | 897 | 3160 | 4920 | 6050 | 5300 | 5230 | 6270 | 6360 | 5660 |
| 15 | 2940 | 3130 | 2690 | 872 | 3330 | 5320 | 6040 | 5370 | 5310 | 6130 | 6460 | 5290 |
| 16 | 2810 | 3140 | 2700 | 846 | 3270 | 5900 | 6040 | 5720 | 5370 | 6170 | 6360 | 5430 |
| 17 | 2920 | 3080 | 2830 | 872 | 3680 | 6180 | 6440 | 5970 | 5420 | 6270 | 6240 | 5030 |
| 18 | 3250 | 2890 | 2750 | 875 | 4070 | 6440 | 6530 | 6440 | 5440 | 6280 | 6070 | 4940 |
| 19 | 3500 | 2740 | 2960 | 980 | 4070 | 6580 | 6900 | 6560 | 5600 | 6480 | 6050 | 4980 |
| 20 | 3380 | 2600 | 3010 | 990 | 4580 | 6600 | 6890 | 6520 | 5830 | 6150 | 5930 | 5120 |
| 21 | 3460 | 2900 | 3020 | 1090 | 4780 | 6690 | 6980 | 6370 | 6260 | 5800 | 5950 | 5300 |
| 22 | 3720 | 3010 | 2920 | 1070 | 4770 | 6800 | 6700 | 6420 | 6460 | 6350 | 6030 | 5270 |
| 23 | 3710 | 3000 | 2270 | 1010 | 4990 | 6710 | 6300 | 6410 | 6340 | 6400 | 6270 | 5140 |
| 24 | 3490 | 2770 | 1430 | 1230 | 4980 | 6390 | 6530 | 5900 | 6100 | 6160 | 6080 | 4880 |
| 25 | 3580 | 2640 | 1570 | 1440 | 4820 | 5900 | 6700 | 5490 | 5740 | 6140 | 5810 | 4880 |
| 26 | 3690 | 2770 | 1740 | 1710 | 4340 | 5150 | 6730 | 5190 | 5620 | 6250 | 5880 | 5100 |
| 27 | 3590 | 2780 | 1330 | 1900 | 4720 | 5330 | 6730 | 4890 | 5750 | 5750 | 5840 | 5290 |
| 28 | 3330 | 2930 | 1070 | 2310 | 4080 | 5920 | 6780 | 4910 | 6040 | 5700 | 5700 | 5680 |
| 29 | 3470 | 2730 | 987 | 2080 | --- | 6150 | 6780 | 5210 | 5990 | 5940 | 5740 | 5510 |
| 30 | 3310 | 2800 | 738 | 2260 | --- | 6330 | 6710 | 5420 | 6130 | 5730 | 5810 | 5280 |
| 31 | 3300 | --- | 675 | 1570 | --- | 6560 | --- | 5620 | --- | 5980 | 5840 | --- |
| TOTAL | 107950 | 89590 | 71970 | 35986 | 90560 | 144640 | 192310 | 180290 | 168120 | 192210 | 188120 | 157350 |
| MEAN | 3482 | 2986 | 2322 | 1161 | 3234 | 4666 | 6410 | 5816 | 5604 | 6200 | 6068 | 5245 |
| MAX | 4240 | 3450 | 3020 | 2310 | 4990 | 6800 | 6980 | 6560 | 6460 | 6560 | 6460 | 5810 |
| MIN | 2810 | 2600 | 675 | 647 | 1400 | 1380 | 5600 | 4890 | 4620 | 5700 | 5700 | 4830 |
| AC-FT | 214100 | 177700 | 142800 | 71380 | 179600 | 286900 | 381400 | 357600 | 333500 | 381200 | 373100 | 312100 |

CAL YR 1977 TOTAL 1622023 MEAN 4444 MAX 7360 MIN 675 AC-FT 3217000
WTR YR 1978 TOTAL 1619096 MEAN 4436 MAX 6980 MIN 647 AC-FT 3211000

Return surface flows below Imperial Dam, AZ-CA

Between Imperial Dam and the international boundary return surface flows from irrigated areas enter the Colorado River through many drains and wasteways in Arizona and California. Other return flows enter the Gila River below the gaging station near Dome (09520500). In addition, return flows collected by the Main Drain and East Main Canal are delivered across the international boundary for use in Mexico.

Diversions for irrigation in the Gila Project in Arizona are made at Imperial Dam by the Gila Gravity Main Canal. (See sta 09522500.) Diversions for the Yuma Project in Arizona and California are made at Imperial Dam by the All-American Canal (see sta 09523000) and by the Yuma Main Canal. (See stas 09524000 and 09525500.) See p. 492 for records of diversions.

See figure 6 on p. 474 for the schematic diagram showing location of diversions and return flows.

09525000. YUMA MAIN CANAL WASTEWAY.--See daily table elsewhere in this report.

09527000. PILOT KNOB POWERPLANT AND WASTEWAY.--See daily table elsewhere in this report.

09527900. MITTRY LAKE OUTLET CHANNEL.
LOCATION.--Water-stage recorder and sharp-crested weir, in NW¼SE¼ sec.14, T.7 S., R.22 W., Hydrologic Unit 15030107, 1,000 ft (300 m) upstream from outlet to Colorado River and Laguna Dam.

PERIOD OF RECORD.--Monthly discharge October 1974 to current year.

REMARKS.--Record shows return flow to Colorado River from Mittry Lake. Prior to Nov. 6, 1974, records furnished by Bureau of Reclamation.

09528600. LAGUNA CANAL WASTEWAY.
LOCATION.--Water-stage recorder and sharp-crested weir, in SE¼SW¼ sec. 14, T.7 S., R.22 W., Hydrologic Unit 15030107, 1,000 ft (300 m) downstream from Laguna Dam and 0.7 mi (1.1 km) upstream from outlet to Colorado River.

PERIOD OF RECORD.--Monthly discharge October 1960 to current year.

REMARKS.--Record shows waste water from North Gila Valley Irrigation District returned to Colorado River. Flow record computed from standard weir rating.

09528800. LEVEE CANAL WASTEWAY.
LOCATION.--Water-stage recorder and sharp-crested weir, in SE¼SW¼ sec.4, T.8 S., R.22 W., Hydrologic Unit 15030107, 1,000 ft (300 m) upstream from outlet to Colorado River.

PERIOD OF RECORD.--Monthly discharge October 1960 to current year.

REMARKS.--Record shows waste water from North Gila Valley Irrigation District returned to Colorado River.

09529000. NORTH GILA DRAIN NO. 1.
LOCATION.--Water-stage recorder, in SE¼SW¼ sec.4, T.8 S., R.22 W., Hydrologic Unit 15030107, 0.25 mi (0.40 km) upstream from outlet to Colorado River and 5.5 mi (8.8 km) downstream from Laguna Dam. No gage prior to Oct. 16, 1974.

PERIOD OF RECORD.--Monthly discharge October 1960 to current year.

REMARKS.--Record shows waste water from North Gila Valley Irrigation District returned to Colorado River. Prior to Oct. 16, 1974, flow records were computed by interpolation between discharge measurements made monthly.

09529050. NORTH GILA DRAIN NO. 3.
LOCATION.--Drain enters wasteway to Gila River in NE¼NE¼ sec.18, T.8 S., R.21 W., Hydrologic Unit 15070201, 1,000 ft (300 m) upstream from Gila River.

PERIOD OF RECORD.--Monthly discharge April 1962 to current year.

REMARKS.--Record shows seepage from Gila Gravity Main Canal. There is no gage; records are computed by interpolation between discharge measurements made monthly.

09529100. FORTUNA WASTEWAY.
LOCATION.--Water-stage recorder and sharp-crested weir, in NE¼ sec.30, T.8 S., R.21 W., Hydrologic Unit 15070201, 1.3 mi (2.1 km) upstream from Gila River.

PERIOD OF RECORD.--Monthly discharge October 1960 to September 1963, October 1964 to current year.

REMARKS.--Record shows waste water spilled from Gila Gravity Main Canal; flow rarely reaches Gila River.

09529150. NORTH GILA MAIN CANAL WASTEWAY.
LOCATION.--Water-stage recorder in NE¼NW¼ sec.22, T.8 S., R.22 W., Hydrologic Unit 15070201, 1,000 ft (300 m) upstream from outlet to Gila River. Prior to July 1966 water-stage recorder and sharp-crested weir, 1 mi (1.6 km) upstream from outlet to Gila River.

PERIOD OF RECORD.--Monthly discharge October 1960 to current year.

REMARKS.--Record shows waste water from North Gila Valley Irrigation District. Prior to July 1966 record shows waste water less flow diverted for irrigation between gage and Gila River.

09529160. SOUTH GILA PUMP OUTLET CHANNEL NO. 3.
LOCATION.--Water-stage recorder in NW¼SE¼ sec.22, T.8 S., R.22 W., Hydrologic Unit 15070201, 0.5 mi (0.8 km) upstream from outlet to Gila River. Prior to Aug. 1, 1965, record obtained by Badger total-flow meter about 500 ft (150 m) downstream.

PERIOD OF RECORD.--Monthly discharge January 1965 to current year.

REMARKS.--Record shows water pumped from wells in South Gila Valley Unit.

Return surface flows below Imperial Dam, AZ-CA--Continued

09529200. BRUCE CHURCH DRAIN.
LOCATION.--At culvert in NW¼NE¼ sec.21, T.8 S., R.22 W., Hydrologic Unit 15070201, 0.2 mi (0.3 km) upstream from outlet to Gila River.

PERIOD OF RECORD.--Monthly discharge April 1962 to current year.

REMARKS.--Record shows seepage water from parts of secs. 15, 16, and 21 (Bruce Church Ranch). Flow computed by interpolation between discharge measurements; prior to Nov. 30, 1970, flow determined from pump rating.

09529240. SOUTH GILA PUMP OUTLET CHANNEL NO. 2.
LOCATION.--Water-stage recorder in SW¼NW¼ sec.28, T.8 S., R.22 W., Hydrologic Unit 15070201, 0.6 mi (1.0 km) upstream from outlet to Gila River; prior to Oct. 18, 1965, outlet was to Wellton-Mohawk Main Outlet Drain. Prior to Aug. 1, 1965, Sparling meter at outlet to Wellton-Mohawk Main Outlet Drain.

PERIOD OF RECORD.--Monthly discharge January 1962 to current year.

REMARKS.--Record shows water pumped from wells in South Gila Valley Unit and conveyed by concrete channel to the Gila River.

09529250. BRUCE CHURCH WASTEWAY.
LOCATION.--Water-stage recorder and sharp-crested weir, in SE¼SE¼ sec.20, T.8 S., R.22 E., Hydrologic Unit 15070201, 500 ft (150 m) upstream from outlet to Gila River.

PERIOD OF RECORD.--Monthly discharge October 1960 to current year.

REMARKS.--Record shows waste water from North Gila Valley Irrigation District returned to Gila River.

09529300. WELLTON-MOHAWK MAIN OUTLET DRAIN (CONVEYANCE CHANNEL).
LOCATION.--Water-stage recorder and Parshall flume in NE¼NW¼ sec.17, T.8 S., R.21 W., Hydrologic Unit 15070201, 7.8 mi (12.6 km) upstream from outlet to Gila River (M.O.D.E. 1), which is 0.6 mi (1.0 km) upstream from mouth of Gila River. Prior to Feb. 20, 1962, gage heights measured from reference point on measuring bridge. Prior to Oct. 1, 1974, gage located 1,000 ft (300 m) upstream without Parshall flume.

PERIOD OF RECORD.--Monthly discharge October 1960 to current year.

REMARKS.--Record shows water pumped from numerous wells in Wellton-Mohawk Irrigation and Drainage District to lower the water table. Flow can be discharged to the Gila River or Colorado River by any one of or combination of three outlets. These outlets are known as: M.O.D.E. 1 (release to Gila River about 8.0 mi (13 km) below station): M.O.D.E. 2 (see sta 09531800), release to Colorado River above Morelos Dam; and M.O.D.E. 3 (see sta 09531900), release to Colorado River below Morelos Dam. Since June 1977 discharge of drain has been released to Wellton-Mohawk Bypass Drain and measured at Arizona-Sonora boundary (see sta 09533300). For water year 1978, no water was released to Gila River through M.O.D.E. 1.

09529360. SOUTH GILA PUMP OUTLET CHANNEL NO. 1.
LOCATION.--Water-stage recorder in SW¼NE¼ sec.30, T.8 S., R.22 W., Hydrologic Unit 15070201, 0.2 mi (0.3 km) upstream from outlet to Gila River, which is 0.6 mi (1.0 km) upstream from mouth of Gila River. Prior to Aug. 1, 1965, Sparling flowmeter 300 feet (90 m) upstream.

PERIOD OF RECORD.--Monthly discharge August 1961 to current year.

REMARKS.--Record shows water pumped from wells in South Gila Valley Unit and conveyed by concrete channel to Gila River.

09529400. SOUTH GILA DRAIN NO. 2.
LOCATION.--Near center of sec.24, T.8 S., R.23 W., Hydrologic Unit 15030107, at outlet to Colorado River. Prior to Oct. 1, 1969, Sparling flowmeter at same site.

PERIOD OF RECORD.--Monthly discharge October 1960 to current year.

REMARKS.--Record shows ground-water drainage and occasional waste water from South Gila Valley Unit returned to Colorado River. There is no gage; flow record computed by interpolation between discharge measurements made bimonthly.

09529420. SOUTH GILA TERMINAL WASTEWAY.
LOCATION.--Water-stage recorder and Parshall flume in SW¼NW¼ sec.36, T.8 S., R.23 W., Hydrologic Unit 15030107, 2.0 mi (3.2 km) upstream from outlet to Colorado River. Prior to Aug. 1, 1965, total-flow meter at same site.

PERIOD OF RECORD.--Monthly discharge March 1965 to current year.

REMARKS.--Record shows waste water from South Gila Canal of South Gila Valley Unit returned to Colorado River.

09529440. SOUTH GILA PUMP OUTLET CHANNEL NO. 4.
LOCATION.--Water-stage recorder and broad-crested weir, in NW¼NW¼ sec.26, T.8 S., R.23 W., Hydrologic Unit 15030107, 1.5 mi (2.4 km) upstream from outlet to Colorado River.

PERIOD OF RECORD.--Monthly discharge July 1965 to current year.

REMARKS.--Records shows water pumped from wells in South Gila Valley Unit and conveyed by concrete-lined channel to Colorado River.

09529600.--RESERVATION DRAIN NO. 7.
LOCATION.--At downstream end of culvert on State Road 24 (formerly Avenue C), in NE¼NE¼ sec.33, T.15 S., R.23 E., Hydrologic Unit 15030107, San Bernardino meridian, 0.5 mi (0.8 km) upstream from outlet to Reservation Main Drain. Prior to Oct. 1, 1969, nonrecording gage at same site.

PERIOD OF RECORD.--Monthly discharge March 1966 to current year.

REMARKS.--Record shows drainage water from sec.34, T.15 S., R.23 E., and is used with sta 09529700 to determine seepage from All-American Canal. There is no gage; flow record computed by interpolation between discharge measurements made monthly. Beginning June 20, 1967, Imperial Irrigation District makes discharge measurements weekly; however, Imperial Irrigation District made no measurements during 1978 WY.

Return surface flows below Imperial Dam, AZ-CA--Continued

09529700. RESERVATION MAIN DRAIN NO. 6.
LOCATION.--Nonrecording gage on upstream right piling of Stallnacker Road Bridge (formerly 9th Street Bridge), in SE¼SW¼ sec.32, T.15 S., R.23 E., Hydrologic Unit 15030107, San Bernardino meridian.

PERIOD OF RECORD.--Monthly discharge March 1966 to current year.

REMARKS.--Record shows waste and drainage water from the Reservation Division, and is used with sta 09529600 to determine seepage from All-American Canal, which parallels drain for 4 mi (6.4 km). Flow record computed by interpolation between discharge measurements made monthly. The Imperial Irrigation District makes discharge measurements weekly.

09529800. RESERVATION DRAIN NO. 2.
LOCATION.--At upstream side of bridge on White Road (formerly 8th Street), in SW¼NW¼ sec.6, T.16 S., R.23 E., Hydrologic Unit 15030107, San Bernardino meridian, 0.9 mi (1.4 km) upstream from outlet to Reservation Main Drain.

PERIOD OF RECORD.--Monthly discharge March 1966 to current year.

REMARKS.--Record used to compute seepage from All-American Canal in sec.31, T.15 S., R.22 E. There is no gage; flow record computed by interpolation between discharge measurements made monthly. The Imperial Irrigation District makes discharge measurements weekly.

09529900. RESERVATION DRAIN NO. 3.
LOCATION.--At Jackson Road Bridge (formerly 5th Street Bridge), in SE¼SE¼ sec.10, T.16 S., R.22 E., Hydrologic Unit 15030107, San Bernardino meridian, 1.0 mi (1.6 km) upstream from outlet to Reservation Main Drain.

PERIOD OF RECORD.--Monthly discharge March 1966 to current year.

REMARKS.--Record used to compute seepage from All-American Canal upstream from Yuma Main Canal. There is no gage; flow record computed by interpolation between discharge measurements made monthly. Imperial Irrigation District makes discharge measurements weekly.

09530000. RESERVATION MAIN DRAIN NO. 4.
LOCATION.--Water-stage recorder in NW¼SE¼ sec.26, T.16 S., R.22 E., Hydrologic Unit 15030107, San Bernardino meridian, 500 ft (150 m) upstream from railroad culvert. Prior to January 1937, no gage. January 1937 to Apr. 16, 1941, nonrecording gages at culvert 500 ft (150 m) downstream at different datums. April 16, 1941, to Dec. 16, 1971, water-stage recorder at culvert 500 ft (150 m) downstream. May 29, 1974, to Feb. 2, 1976, water-stage recorder with vane meter at present site. Flow enters Yuma Main Canal wasteway channel 200 ft (60 m) downstream from spillway structure. Prior to May 1955 it entered 500 ft (150 m) upstream from outlet of Yuma Main Canal wasteway in SE¼SW¼ sec.26, T.16 S., R.22 E., San Bernardino meridian.

PERIOD OF RECORD.--Monthly discharge January 1913 to April 1920, October 1921 to March 1925, January 1934 to current year (calendar year discharge only 1934-36). Prior to October 1955, published as California drainage canal.

REMARKS.--Record shows waste and drainage water from area east of Yuma Main Canal on Reservation Division. Since 1939, seepage from All-American Canal has caused large increase. Flow is not included in the record of Yuma Main Canal wasteway.

09530200. YUMA MESA OUTLET DRAIN.
LOCATION.--Venturi meter with recorder in SE¼SW¼ sec.28, T.16 S., R.22 E., Hydrologic Unit 15030107, San Bernardino meridian, in Arizona, Yuma County, 0.3 mi (0.5 km) from outlet to Colorado River.

PERIOD OF RECORD.--Monthly discharge July 1970 to current year.

REMARKS.--Record shows water pumped from wells on the Yuma Mesa and conveyed by underground conduit to Colorado River.

COOPERATION.--Records furnished by Bureau of Reclamation prior to July 21, 1972.

09530400. RESERVATION DRAIN NO. 11.
LOCATION.--At outlet to Drain 8-B (Araz Drain), in NE¼NE¼ sec.19, T.16 S., R.22 E., Hydrologic Unit 15030107, San Bernardino meridian.

PERIOD OF RECORD.--Monthly discharge March 1966 to current year.

REMARKS.--Record shows drainage from sec.20, T.16 S., R.22 E. Flow at this station, with that at sta 09530500, is used to determine seepage from All-American Canal. There is no gage; flow record computed by interpolation between discharge measurements made monthly. Beginning June 20, 1967, Imperial Irrigation District makes discharge measurements weekly.

09530500. DRAIN 8-B.
LOCATION.--Enters Colorado River in NE¼NW¼ sec.30, T.16 S., R.22 E., Hydrologic Unit 15030107, San Bernardino meridian, 4 mi (6.4 km) downstream from outlet of Yuma Main Canal wasteway.

PERIOD OF RECORD.--Monthly discharge March 1948 to current year. Prior to October 1955, published as Araz Drain.

REMARKS.--Record shows seepage from All-American Canal, and waste and drainage water west of Yuma Main Canal on the Reservation Division. Flow at this station, with that at sta 09530400, is used to determine seepage from All-American Canal. There is no gage, but due to fairly constant drainage, flow record is computed by interpolation between discharge measurements made monthly. Imperial Irrigation District mades discharge measurements weekly at site 1,000 ft (300 m) upstream.

09531800. MAIN OUTLET DRAIN EXTENSION ABOVE MORELOS DAM (M.O.D.E. 2).
LOCATION.--Water-stage recorder and Parshall flume in NW¼NW¼ sec.36, T.16 S., R.21 E., Hydrologic Unit 15030107, San Bernardino meridian, at outlet to Colorado River, 1.7 mi (2.7 km) upstream from Morelos Dam.

PERIOD OF RECORD.--Monthly discharge November 1965 to current year.

REMARKS.--Record shows water conveyed to Colorado River 1.7 mi (2.7 km) above Morelos Dam, from numerous drainage wells in Wellton-Mohawk Irrigation and Drainage District. No flow since July 24, 1973. (See also stas 09529300 and 09531900.)

Return surface flows below Imperial Dam, AZ-CA--Continued

09531850. COOPER WASTEWAY.
LOCATION.--Water-stage recorder and weir, in NE¼NE¼ sec.28, T.8 S., R.24 W., Hydrologic Unit 15030108, 0.6 mi (1.0 km) upstream from Morelos Dam. Prior to July 14, 1971, at site 1 mi (1.6 km) downstream.

PERIOD OF RECORD.--Monthly discharge January 1934 to current year.

REMARKS.--Record shows waste water from Valley Division returned to Colorado River.

COOPERATION.--Record furnished by International Boundary and Water Commission (U.S. Section).

09531900. MAIN OUTLET DRAIN EXTENSION BELOW MORELOS DAM (M.O.D.E. 3).
LOCATION.--Water-stage recorder and Parshall flume in NW¼SE¼ sec.28, T.8 S., R.24 W., Hydrologic Unit 15030108, at outlet to Colorado River just downstream from Morelos Dam.

PERIOD OF RECORD.--Monthly discharge November 1965 to current year.

REMARKS.--Record shows water conveyed to Colorado River below Morelos Dam, from numerous drainage wells in Wellton-Mohawk Irrigation and Drainage District. (See also stas 09529300, 09531800.)

COOPERATION.--Record furnished by International Boundary and Water Commission (U.S. Section).

09532500. ELEVEN MILE WASTEWAY.
LOCATION.--Water-stage recorder and regulating gate in SE¼NW¼ sec.8, T.9 S., R.24 W., Hydrologic Unit 15030108, 3.2 mi (5.1 km) downstream from Morelos Dam.

PERIOD OF RECORD.--Monthly discharge January 1924 to current year.

REMARKS.--Record shows waste water from Valley Division returned to Colorado River.

COOPERATION.--Record furnished by International Boundary and Water Commission (U.S. Section).

09533000. TWENTY-ONE MILE WASTEWAY.
LOCATION.--Water-stage recorder and weir in NE¼NW¼ sec.35, T.10 S., R.25 W., Hydrologic Unit 15030108, 0.6 mi (1.0 km) upstream from outlet to Colorado River, which is 2.4 mi (3.9 km) upstream from southerly international boundary and 2.6 mi (4.2 km) northwest of San Luis, Ariz. Prior to May 1, 1971, water-stage recorder and Parshall flume at site 200 ft (60 m) upstream.

PERIOD OF RECORD.--Monthly discharge March 1939 to current year.

REMARKS.--Record shows waste water from Valley Division returned to Colorado River.

COOPERATION.--Record furnished by International Boundary and Water Commission (U.S. Section).

09533300. WELLTON-MOHAWK BYPASS DRAIN AT ARIZONA-SONORA BOUNDARY.
LOCATION.--Water-stage recorder and Parshall flume in NW¼NE¼ sec.10, T.11 S., R.25 W., Hydrologic Unit 15030108, on right bank 80 ft (24 m) upstream from the Arizona boundary, 550 ft (168 m) east of the thalweg of Colorado River, and 1.8 mi (2.9 km) west of San Luis, Ariz.

PERIOD OF RECORD.--Monthly discharge June 1977 to current year.

REMARKS.--Record shows water conveyed to the Santa Clara Slough, from numerous drainage wells in Wellton-Mohawk Irrigation and Drainage District. (See also stas 09529300, 09531800, 09531900.)

COOPERATION.--Record furnished by International Boundary and Water Commision (U.S. Section).

09534000. MAIN DRAIN.
LOCATION.--Flowmeters in discharge pipes at pumping plant in SE¼NE¼ sec.11, T.11 S., R.25 W., Hydrologic Unit 15030108, 0.4 mi (0.6 km) west of San Luis, Ariz. Prior to Apr. 1, 1969, rated pumps with forebay and afterbay gages to measure head.

PERIOD OF RECORD.--Monthly discharge January 1919 to current year.

REMARKS.--Record shows flow which consists mostly of drainage water from the Valley Division which is pumped across the Arizona-Sonora boundary for use in Mexico. Flowmeters checked by discharge measurements made by International Boundary and Water Commission (U.S. Section).

COOPERATION.--Record furnished by International Boundary and Water Commission (U.S. Section).

09534300. WEST MAIN CANAL WASTEWAY.
LOCATION.--Water-stage recorder and weir, in NW¼NE¼ sec.11, T.11 S., R.25 W., Hydrologic Unit 15030108, 0.3 mi (0.5 km) upstream from outlet to Main drain, and 0.4 mi (0.6 km) west of San Luis, Ariz. Prior to Aug. 1, 1975, at site 150 ft (46 m) upstream from outlet to Main drain.

PERIOD OF RECORD.--Monthly discharge February 1971 to current year.

REMARKS.--Record shows waste water from Valley Division which is discharged across the Arizona-Sonora boundary for use in Mexico.

COOPERATION.--Record furnished by International Boundary and Water Commission (U.S. Section).

09534500. EAST MAIN CANAL WASTEWAY.
LOCATION.--Water-stage recorder and weir, in NW¼SW¼ sec.12, T.11 S., R.25 W., Hydrologic Unit 15030108, 0.3 mi (0.5 km) upstream from outlet to Main drain, and 0.2 mi (0.3 km) west of San Luis, Ariz.

PERIOD OF RECORD.--Monthly discharge January 1924 to June 1928, January 1932 to December 1933, April 1935 to current year. Calendar year estimates 1934 and 1935, published in WSP 1313.

REMARKS.--Record shows amount of unused water at the extreme end of the Valley Division which is discharged across the Arizona-Sonora boundary for use in Mexico.

COOPERATION.--Record furnished by International Boundary and Water Commission (U.S. Section).

Return surface flows below Imperial Dam, AZ-CA--Continued

MONTHLY RETURN FLOWS, IN ACRE-FEET, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| Month | Mittry Lake Outlet Channel 09527900 | Laguna Canal wasteway 09528600 | Levee Canal wasteway 09528800 | North Gila Drain No. 1 09529000 | North Gila Drain No. 3 09529050 | Fortuna wasteway 09529100 |
|---|---|---|---|---|---|---|
| October | 550 | 0.8 | 143 | 429 | 0 | 23 |
| November | 549 | 16 | 127 | 258 | 0 | 6.0 |
| December | 586 | 4.4 | 107 | 145 | 0 | 53 |
| CAL YR 1977 | 7,420 | 51 | 1,840 | 3,990 | 0 | 641 |
| January | 817 | 0 | 22 | 157 | 0 | 32 |
| February | 641 | 0 | 215 | 123 | 0 | 13 |
| March | 718 | 0 | 137 | 179 | 0 | 15 |
| April | 402 | 0 | 168 | 247 | 0 | 32 |
| May | 177 | 0 | 172 | 242 | 0 | 30 |
| June | 443 | 0 | 139 | 274 | 0 | 22 |
| July | 787 | 0 | 151 | 241 | 0 | 32 |
| August | 801 | 0 | 242 | 291 | 0 | 8.0 |
| September | 484 | 0 | 119 | 361 | 0 | 6.3 |
| WTR YR 1978 | 6,960 | 21 | 1,740 | 2,950 | 0 | 271 |

| Month | North Gila Main Canal wasteway 09529150 | South Gila Pump Outlet Channel No. 3 09529160 | Bruce Church Drain 09529200 | South Gila Pump Outlet Channel No. 2 09529240 | Bruce Church wasteway 09529250 |
|---|---|---|---|---|---|
| October | 88 | 2.2 | 1.4 | 199 | 4.6 |
| November | 187 | 5.0 | 6.0 | 510 | 5.9 |
| December | 72 | 3.5 | 0.2 | 1,510 | 0.3 |
| CAL YR 1977 | 1,210 | 7,150 | 203 | 16,960 | 59 |
| January | 64 | 3.8 | 0 | 392 | 3.6 |
| February | 44 | 678 | 2.2 | 1,460 | 3.7 |
| March | 80 | 1,520 | 6.1 | 1,550 | 9.7 |
| April | 43 | 1,690 | 6.0 | 1,690 | 5.4 |
| May | 87 | 23 | 0 | 1,710 | 0.04 |
| June | 123 | 178 | 0 | 1,280 | 0.3 |
| July | 150 | 1,940 | 0 | 1,160 | 0.5 |
| August | 126 | 1,370 | 0 | 1,660 | 0 |
| September | 177 | 232 | 0 | 1,620 | 7.6 |
| WTR YR 1978 | 1,240 | 7,660 | 22 | 14,740 | 41 |

| Month | Wellton-Mohawk Main Outlet Drain 09529300 | South Gila Pump Outlet Channel No. 1 09529360 | South Gila Drain No. 2 09529400 | South Gila Terminal wasteway 09529420 | South Gila Pump Outlet Channel No. 4 09529440 |
|---|---|---|---|---|---|
| October | 18,300 | 2,360 | 0 | 62 | 0 |
| November | 16,710 | 2,210 | 14 | 68 | 22 |
| December | 18,110 | 2,680 | 25 | 79 | 710 |
| CAL YR 1977 | 204,200 | 28,690 | 352 | 618 | 2,760 |
| January | 17,600 | 2,380 | 15 | 39 | 30 |
| February | 15,380 | 2,080 | 11 | 52 | 627 |
| March | 17,300 | 2,520 | 18 | 33 | 529 |
| April | 16,930 | 2,460 | 24 | 55 | 1,020 |
| May | 16,630 | 2,520 | 31 | 56 | 158 |
| June | 15,860 | 2,370 | 42 | 48 | 229 |
| July | 14,210 | 2,440 | 56 | 30 | 258 |
| August | 14,890 | 2,100 | 57 | 68 | 536 |
| September | 13,610 | 1,730 | 42 | 46 | 2.5 |
| WTR YR 1978 | 195,500 | 27,850 | 335 | 637 | 4,120 |

NOTE.--Yearly totals given above have been computed from total cfs-days and may differ slightly from the summation of monthly total acre-feet on occasion.

Return surface flows below Imperial Dam, AZ-CA--Continued

MONTHLY RETURN FLOWS, IN ACRE-FEET, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| Month | Reservation Drain No. 7 09529600 | Reservation Main Drain No. 6 09529700 | Reservation Drain No. 2 09529800 | Reservation Drain No. 3 09529900 | Reservation Main Drain No. 4 09530000 | Yuma Mesa Outlet Drain 09530200 |
|---|---|---|---|---|---|---|
| October | 59 | 1,010 | 6.1 | 221 | 2,610 | 2,840 |
| November | 40 | 930 | 6.0 | 195 | 2,570 | 2,900 |
| December | 33 | 843 | 6.1 | 206 | 2,670 | 2,430 |
| CAL YR 1977 | 907 | 11,230 | 69 | 2,720 | 35,410 | 40,890 |
| January | 25 | 756 | 6.1 | 184 | 2,290 | 619 |
| February | 22 | 698 | 5.6 | 164 | 2,080 | 2,430 |
| March | 29 | 912 | 6.1 | 219 | 2,910 | 2,190 |
| April | 32 | 893 | 6.0 | 258 | 2,930 | 2,750 |
| May | 36 | 906 | 6.1 | 241 | 2,960 | 3,290 |
| June | 70 | 859 | 6.0 | 241 | 2,800 | 3,070 |
| July | 91 | 964 | 8.3 | 284 | 3,150 | 3,140 |
| August | 83 | 1,050 | 6.7 | 270 | 3,360 | 3,210 |
| September | 77 | 954 | 6.0 | 239 | 3,490 | 3,190 |
| WTR YR 1978 | 597 | 10,780 | 75 | 2,720 | 33,820 | 32,060 |

| Month | Reservation Drain No. 11 09530400 | Drain 8-B 09530500 | M.O.D.E. 2 (above Morelos Dam) 09531800 | Cooper wasteway 09531850 | M.O.D.E. 3 (below Morelos Dam) 09531900 | Eleven Mile wasteway 09532500 |
|---|---|---|---|---|---|---|
| October | 6.1 | 102 | 0 | 18 | 68 | 15 |
| November | 6.0 | 66 | 0 | 78 | 23 | 250 |
| December | 9.9 | 53 | 0 | 14 | 3.0 | 279 |
| CAL YR 1977 | 118 | 1,220 | 0 | 770 | 98,800 | 1,500 |
| January | 12 | 49 | 0 | 35 | 1.4 | 31 |
| February | 11 | 40 | 0 | 38 | 1,630 | 114 |
| March | 13 | 63 | 0 | 36 | 0 | 235 |
| April | 18 | 68 | 0 | 48 | 0 | 159 |
| May | 18 | 58 | 0 | 98 | 0 | 10 |
| June | 14 | 73 | 0 | 41 | 0 | 133 |
| July | 23 | 88 | 0 | 82 | 0.8 | 13 |
| August | 21 | 85 | 0 | 58 | 30 | 98 |
| September | 18 | 74 | 0 | 41 | 0 | 10 |
| WTR YR 1978 | 170 | 819 | 0 | 587 | 1,760 | 1,350 |

| Month | Twenty-one Mile wasteway 09533000 | Wellton-Mohawk Bypass Drain 09533300 | Main Drain 09534000 | West Main Canal wasteway 09534300 | East Main Canal wasteway 09534500 |
|---|---|---|---|---|---|
| October | 0 | 18,540 | 7,080 | 133 | 443 |
| November | 0 | 16,980 | 6,250 | 175 | 254 |
| December | 0 | 18,260 | 5,730 | 314 | 247 |
| CAL YR 1977 | 0 | 108,000 | 82,850 | 3,910 | 5,000 |
| January | 0 | 17,540 | 5,470 | 232 | 90 |
| February | 0 | 13,640 | 5,280 | 252 | 231 |
| March | 0 | 17,430 | 6,390 | 290 | 258 |
| April | 0 | 16,710 | 6,360 | 164 | 295 |
| May | 0 | 16,200 | 6,500 | 170 | 228 |
| June | 6.1 | 15,040 | 6,170 | 150 | 247 |
| July | 0 | 13,990 | 6,570 | 93 | 286 |
| August | 0 | 14,740 | 6,540 | 237 | 297 |
| September | 0 | 13,430 | 6,380 | 300 | 354 |
| WTR YR 1978 | 6 | 192,500 | 74,720 | 2,510 | 3,230 |

NOTE.--Yearly totals given above have been computed from total cfs-days and may differ slightly from the summation of monthly total acre-feet on occasion.

## 09527900 MITTRY LAKE OUTLET CHANNEL NEAR YUMA, AZ

LOCATION.--Lat 32°48'09", long 114°28'05", in NW¼SE¼ sec.14, T.7 S., R.22 W., Yuma County, Hydrologic Unit 15030107, at water-stage recorder and sharp-crested weir, 1,000 ft (305 m) upstream from outlet into Colorado River above Laguna Dam, and 12 mi (19 km) northeast of Yuma.

PERIOD OF RECORD.--September 1974 to current year.

REMARKS.--No flow May 5-13.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 03... | 0230 | 11 | 1760 | 8.3 | 25.5 | 360 | 230 | 85 | 37 | 250 | 5.7 | 7.4 |
| NOV | | | | | | | | | | | | |
| 07... | 0330 | 12 | 1730 | 8.0 | 18.0 | 370 | 230 | 84 | 40 | 250 | 5.6 | 7.2 |
| DEC | | | | | | | | | | | | |
| 05... | 0400 | 6.6 | 1750 | 8.1 | 19.5 | 400 | 250 | 89 | 42 | 210 | 4.6 | 7.3 |
| JAN | | | | | | | | | | | | |
| 02... | 0215 | 12 | 1670 | 7.9 | 18.0 | 400 | 230 | 93 | 40 | 220 | 4.8 | 7.8 |
| FEB | | | | | | | | | | | | |
| 06... | 0135 | 10 | 1740 | 8.1 | 16.0 | 410 | 220 | 96 | 41 | 230 | 5.0 | 8.4 |
| MAR | | | | | | | | | | | | |
| 06... | 0210 | 13 | 1890 | 8.1 | 18.5 | 450 | 240 | 110 | 42 | 260 | 5.3 | 9.2 |
| APR | | | | | | | | | | | | |
| 03... | 0215 | 9.1 | 1970 | 8.1 | 18.5 | 460 | 250 | 110 | 45 | 260 | 5.3 | 8.5 |
| MAY | | | | | | | | | | | | |
| 01... | 0200 | 2.4 | 1980 | 7.9 | 19.0 | 450 | 230 | 110 | 42 | 270 | 5.6 | 9.4 |
| JUN | | | | | | | | | | | | |
| 05... | 0235 | 5.1 | 1980 | 7.9 | 23.5 | 440 | 260 | 100 | 45 | 300 | 6.3 | 8.4 |
| JUL | | | | | | | | | | | | |
| 03... | 0715 | 11 | 1930 | 8.0 | 25.5 | 410 | 270 | 92 | 43 | 270 | 5.8 | 8.5 |
| AUG | | | | | | | | | | | | |
| 07... | 0245 | 15 | 1850 | 8.0 | 29.5 | 410 | 180 | 91 | 44 | 260 | 5.6 | 8.5 |
| SEP | | | | | | | | | | | | |
| 04... | 0145 | 11 | 1840 | 8.0 | 28.0 | 400 | 240 | 91 | 41 | 230 | 5.0 | 8.6 |

| DATE | BICAR-BONATE (MG/L AS HCO3) | CAR-BONATE (MG/L AS CO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER AC-FT) | NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) | BORON, DIS-SOLVED (UG/L AS B) | IRON, DIS-SOLVED (UG/L AS FE) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 03... | 170 | 0 | 450 | 200 | 1.9 | 25 | 1130 | 1140 | 1.54 | -- | 340 | 20 |
| NOV | | | | | | | | | | | | |
| 07... | 180 | 0 | 440 | 190 | 1.7 | 22 | 1120 | 1120 | 1.52 | -- | 340 | 10 |
| DEC | | | | | | | | | | | | |
| 05... | 180 | 0 | 450 | 200 | 1.7 | 18 | 1160 | 1110 | 1.58 | -- | 350 | 20 |
| JAN | | | | | | | | | | | | |
| 02... | 200 | 0 | 420 | 190 | 1.5 | 16 | 1070 | 1090 | 1.46 | -- | 320 | 20 |
| FEB | | | | | | | | | | | | |
| 06... | 230 | 0 | 420 | 200 | 1.5 | 16 | 1120 | 1130 | 1.52 | -- | 320 | 10 |
| MAR | | | | | | | | | | | | |
| 06... | 250 | 0 | 440 | 240 | 1.5 | 15 | 1220 | 1240 | 1.66 | -- | 350 | 0 |
| APR | | | | | | | | | | | | |
| 03... | 260 | 0 | 460 | 250 | 1.6 | 14 | 1290 | 1280 | 1.75 | -- | 370 | 10 |
| MAY | | | | | | | | | | | | |
| 01... | 260 | 0 | 470 | 240 | 1.6 | 15 | 1270 | 1290 | 1.73 | -- | 380 | 10 |
| JUN | | | | | | | | | | | | |
| 05... | 210 | 0 | 480 | 250 | 1.7 | 16 | 1270 | 1310 | 1.73 | -- | 390 | 20 |
| JUL | | | | | | | | | | | | |
| 03... | -- | -- | 480 | 240 | 1.6 | 16 | 1270 | 1240 | 1.73 | -- | 410 | 10 |
| AUG | | | | | | | | | | | | |
| 07... | 280 | 0 | 450 | 230 | 1.7 | 19 | 1210 | 1240 | 1.65 | .02 | 370 | 20 |
| SEP | | | | | | | | | | | | |
| 04... | 190 | 0 | 460 | 210 | 1.8 | 23 | 1190 | 1160 | 1.62 | .01 | 390 | 20 |

## 09529000 NORTH GILA DRAIN NO. 1 NEAR YUMA, AZ

LOCATION.--Lat 32°45'29", long 114°27'18", in NE¼NW¼ sec.9, T.8 S., R.22 W., Yuma County, Hydrologic Unit 15030107, 0.1 mi (0.2 km) upstream from outlet to Colorado River, and 6 mi (10 km) northeast of Yuma.

PERIOD OF RECORD.--October 1968 to September 1973 (partial-record station), October 1973 to current year.

REMARKS.--Unpublished chemical analyses (partial record) for water years 1962-68 available from district office in Tucson, Ariz.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 25... | 1330 | 6.1 | 1780 | 8.1 | 24.0 | 410 | 230 | 100 | 39 | 240 | 5.2 | 4.6 |
| NOV | | | | | | | | | | | | |
| 28... | 1000 | 2.4 | 1850 | 7.7 | -- | 500 | 300 | 120 | 49 | 240 | 4.7 | 5.1 |
| DEC | | | | | | | | | | | | |
| 27... | 1245 | 2.8 | 1720 | 8.0 | 18.0 | 410 | 230 | 100 | 40 | 220 | 4.7 | 5.6 |
| JAN | | | | | | | | | | | | |
| 23... | 1215 | 1.9 | 1730 | 7.8 | 16.0 | 420 | 230 | 100 | 41 | 220 | 4.7 | 4.6 |
| FEB | | | | | | | | | | | | |
| 21... | 1310 | 2.3 | 1810 | 8.1 | 12.0 | 430 | 230 | 100 | 43 | 230 | 4.8 | 4.7 |
| MAR | | | | | | | | | | | | |
| 20... | 1400 | 3.5 | 1670 | 8.3 | 22.0 | 410 | 240 | 100 | 39 | 210 | 4.5 | 4.9 |
| APR | | | | | | | | | | | | |
| 24... | 1215 | 3.8 | 1660 | 8.1 | 25.5 | 410 | 210 | 100 | 38 | 210 | 4.5 | 4.7 |
| MAY | | | | | | | | | | | | |
| 22... | 1115 | 3.7 | 1750 | 8.1 | 27.0 | 450 | 250 | 110 | 42 | 230 | 4.7 | 4.8 |
| JUN | | | | | | | | | | | | |
| 19... | 1100 | 4.6 | 1760 | 8.0 | 29.5 | 420 | 230 | 100 | 42 | 230 | 4.9 | 4.9 |
| JUL | | | | | | | | | | | | |
| 24... | 1515 | 3.0 | 1600 | 8.1 | 33.0 | 390 | 250 | 95 | 38 | 210 | 4.6 | 4.5 |
| AUG | | | | | | | | | | | | |
| 28... | 1150 | 5.5 | 1630 | 8.1 | 28.5 | 380 | 210 | 97 | 34 | 210 | 4.7 | 4.6 |
| SEP | | | | | | | | | | | | |
| 25... | 1400 | 6.0 | 1800 | 8.0 | 29.0 | 470 | 270 | 120 | 41 | 220 | 4.4 | 5.1 |

| DATE | BICAR-BONATE (MG/L AS HCO3) | CAR-BONATE (MG/L AS CO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER AC-FT) | NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) | BORON, DIS-SOLVED (UG/L AS B) | IRON, DIS-SOLVED (UG/L AS FE) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 25... | 220 | 0 | 430 | 210 | .7 | 21 | 1170 | 1160 | 1.59 | .25 | 280 | 20 |
| NOV | | | | | | | | | | | | |
| 28... | 250 | 0 | 460 | 210 | .6 | 19 | 1240 | 1230 | 1.69 | .36 | 310 | 30 |
| DEC | | | | | | | | | | | | |
| 27... | 220 | 0 | 400 | 200 | .6 | 22 | 1150 | 1100 | 1.56 | .12 | 270 | 10 |
| JAN | | | | | | | | | | | | |
| 23... | 230 | 0 | 440 | 190 | .7 | 21 | 1150 | 1130 | 1.56 | .25 | 280 | 10 |
| FEB | | | | | | | | | | | | |
| 21... | 240 | 0 | 440 | 200 | .7 | 21 | 1210 | 1160 | 1.65 | .31 | 290 | 10 |
| MAR | | | | | | | | | | | | |
| 20... | 210 | 0 | 400 | 180 | .7 | 16 | 1090 | 1050 | 1.48 | .03 | 280 | 10 |
| APR | | | | | | | | | | | | |
| 24... | 240 | 0 | 410 | 190 | .6 | 19 | 1090 | 1090 | 1.48 | .03 | 260 | 20 |
| MAY | | | | | | | | | | | | |
| 22... | 240 | 0 | 420 | 190 | .6 | 21 | 1140 | 1140 | 1.55 | .11 | 310 | 30 |
| JUN | | | | | | | | | | | | |
| 19... | 230 | -- | 430 | 200 | .7 | 21 | 1100 | 1140 | 1.50 | .13 | 300 | 10 |
| JUL | | | | | | | | | | | | |
| 24... | 170 | 0 | 390 | 190 | .6 | 25 | 1040 | 1040 | 1.41 | .02 | 260 | 90 |
| AUG | | | | | | | | | | | | |
| 28... | 210 | 0 | 400 | 180 | .6 | 20 | 1080 | 1050 | 1.47 | .18 | 260 | 20 |
| SEP | | | | | | | | | | | | |
| 25... | 240 | 0 | 480 | 190 | .7 | 21 | 1200 | 1200 | 1.63 | .56 | 290 | 40 |

## 09529050 NORTH GILA DRAIN NO. 3 NEAR YUMA, AZ

LOCATION.--Lat 32°44'28", long 114°26'39", in NE¼NE¼ sec.18, T.8 S., R.21 W., Yuma County, Hydrologic Unit 15070201, 0.2 mi (0.3 km) upstream from outlet to Gila River, and 10 mi (16 km) east of Yuma.

PERIOD OF RECORD.--October 1968 to September 1973 (partial-record station), October 1973 to current year.

REMARKS.--No flow for entire year. Unpublished chemical analyses (partial record) for water years 1965-68 available from district office in Tucson, Ariz.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) |
|---|---|---|
| OCT | | |
| 24... | 1530 | .00 |
| NOV | | |
| 28... | 1145 | .00 |
| DEC | | |
| 27... | 1445 | .00 |
| JAN | | |
| 23... | 1240 | .00 |
| FEB | | |
| 21... | 0845 | .00 |
| MAR | | |
| 20... | 1500 | .00 |
| APR | | |
| 24... | 1340 | .00 |
| MAY | | |
| 22... | 1315 | .00 |
| JUN | | |
| 19... | 1300 | .00 |
| JUL | | |
| 24... | 1600 | .00 |
| AUG | | |
| 28... | 0955 | .00 |
| SEP | | |
| 25... | 1410 | .00 |

## 09529160 SOUTH GILA PUMP OUTLET CHANNEL NO. 3 NEAR YUMA, AZ

LOCATION.--Lat 32°43'04", long 114°30'12", in NW¼SE¼ sec.22, T.8 S., R.22 W., Yuma County, Hydrologic Unit 15070201, at gaging station 0.5 mi (0.8 km) upstream from outlet to Gila River, and 6 mi (10 km) east of Yuma.

PERIOD OF RECORD.--October 1968 to current year.

REMARKS.--No flow for many days of most months. Unpublished miscellaneous chemical analyses for water years 1965-68 available from district office in Tucson, Ariz.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO |
|---|---|---|---|---|---|---|---|---|---|---|---|
| FEB | | | | | | | | | | | |
| 20... | 0610 | 25 | 5030 | 7.6 | 22.0 | 1110 | 794 | 266 | 109 | 670 | 8.7 |
| 27... | 0335 | 27 | 4960 | 7.7 | 20.5 | 1100 | 790 | 262 | 109 | 655 | 8.6 |
| MAR | | | | | | | | | | | |
| 06... | 0430 | 27 | 4870 | 7.5 | 22.0 | 1080 | 778 | 256 | 107 | 640 | 8.5 |
| 13... | 0700 | 25 | 4860 | 7.5 | 21.0 | 1070 | 775 | 256 | 105 | 640 | 8.5 |
| 20... | 0340 | 26 | 4830 | 7.8 | 20.5 | 1060 | 756 | 254 | 104 | 640 | 8.5 |
| 27... | 0300 | 25 | 4860 | 7.6 | 26.5 | 1070 | 772 | 258 | 104 | 640 | 8.5 |
| APR | | | | | | | | | | | |
| 03... | 0345 | 25 | 4850 | 7.8 | 20.5 | 1060 | 762 | 250 | 106 | 640 | 8.6 |
| 10... | 0335 | 32 | 4760 | 7.7 | 20.5 | 990 | 649 | 232 | 100 | 655 | 9.1 |
| 17... | 0250 | 32 | 4830 | 7.7 | 23.0 | 1020 | 676 | 232 | 107 | 660 | 9.0 |
| 24... | 0320 | 32 | 4840 | 7.6 | 20.5 | 1020 | 676 | 236 | 105 | 660 | 9.0 |
| JUL | | | | | | | | | | | |
| 03... | 0345 | 31 | 4840 | 7.5 | 21.5 | 1010 | 667 | 234 | 104 | 665 | 9.1 |
| 10... | 0530 | 33 | 4830 | 7.6 | 29.0 | 1010 | 667 | 234 | 104 | 665 | 9.1 |
| 17... | 0330 | 34 | 4920 | 7.5 | 21.5 | 1080 | 764 | 256 | 107 | 675 | 8.9 |
| 24... | 0250 | 32 | 4990 | 7.6 | 27.0 | 1100 | 784 | 260 | 110 | 680 | 8.9 |
| 31... | 0330 | 31 | 5010 | 7.5 | 30.0 | 1100 | 778 | 258 | 111 | 680 | 8.9 |
| AUG | | | | | | | | | | | |
| 07... | 0420 | 18 | 5660 | 7.6 | 22.0 | 1190 | 872 | 276 | 122 | 790 | 10 |
| 14... | 0115 | 19 | 5660 | 7.6 | 27.0 | 1190 | 870 | 278 | 121 | 790 | 10 |
| 21... | 0330 | 19 | 5660 | 7.5 | 28.0 | 1190 | 872 | 280 | 120 | 790 | 10 |
| 28... | 0320 | 19 | 5690 | 7.5 | 22.0 | 1200 | 880 | 270 | 128 | 795 | 10 |

| DATE | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | BICAR-BONATE (MG/L AS HCO3) | CAR-BONATE (MG/L AS CO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER AC-FT) | NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| FEB | | | | | | | | | | | |
| 20... | 9.4 | 386 | 0 | 490 | 1240 | .8 | 22 | 3280 | 3000 | 4.46 | .41 |
| 27... | 9.4 | 378 | 0 | 485 | 1230 | .5 | 23 | 3290 | 2960 | 4.47 | .23 |
| MAR | | | | | | | | | | | |
| 06... | 9.4 | 368 | 0 | 460 | 1200 | .9 | 26 | 3070 | 2880 | 4.18 | .27 |
| 13... | 8.8 | 360 | 0 | 460 | 1200 | .6 | 22 | 3050 | 2870 | 4.15 | .45 |
| 20... | 9.1 | 370 | 0 | 455 | 1190 | .7 | 23 | 3150 | 2860 | 4.28 | .41 |
| 27... | 9.3 | 364 | 0 | 460 | 1200 | .8 | 21 | 3060 | 2870 | 4.16 | .41 |
| APR | | | | | | | | | | | |
| 03... | 9.0 | 364 | 0 | 460 | 1190 | .5 | 22 | 3000 | 2860 | 4.08 | .29 |
| 10... | 9.0 | 416 | 0 | 525 | 1090 | .6 | 25 | 3100 | 2850 | 4.22 | 2.0 |
| 17... | 8.8 | 420 | 0 | 535 | 1110 | .6 | 22 | 3060 | 2890 | 4.16 | .88 |
| 24... | 8.9 | 420 | 0 | 540 | 1110 | .6 | 24 | 3050 | 2900 | 4.15 | .81 |
| JUL | | | | | | | | | | | |
| 03... | 9.1 | 418 | 0 | 540 | 1110 | .4 | 26 | 2910 | 2900 | 3.96 | 1.4 |
| 10... | 8.9 | 418 | 0 | 540 | 1110 | .6 | 20 | 3230 | 2890 | 4.39 | .77 |
| 17... | 9.1 | 386 | 0 | 510 | 1200 | .7 | 20 | 3340 | 2970 | 4.54 | .36 |
| 24... | 9.3 | 386 | 0 | 515 | 1220 | .6 | 22 | 3390 | 3010 | 4.61 | .54 |
| 31... | 9.3 | 392 | 0 | 520 | 1220 | .6 | 18 | 3350 | 3010 | 4.56 | .36 |
| AUG | | | | | | | | | | | |
| 07... | 9.9 | 388 | 0 | 590 | 1420 | .8 | 26 | 3520 | 3430 | 4.79 | .41 |
| 14... | 9.9 | 390 | 0 | 585 | 1425 | .6 | 24 | 3900 | 3430 | 5.30 | .41 |
| 21... | 10 | 388 | 0 | 590 | 1420 | .6 | 22 | 3830 | 3430 | 5.21 | .38 |
| 28... | 9.5 | 390 | 0 | 595 | 1430 | .7 | 23 | 3850 | 3440 | 5.24 | .32 |

## 09529200 BRUCE CHURCH DRAIN NEAR YUMA, AZ

LOCATION.--Lat 32°43'26", long 114°31'07", in NW¼NE¼ sec.21, T.8 S., R.22 W., Yuma County, Hydrologic Unit 15070201, 0.2 mi (0.3 km) upstream from outlet to Gila River, and 5 mi (8 km) east of Yuma.

PERIOD OF RECORD.--October 1968 to September 1973 (partial-record station), October 1973 to current year.

REMARKS.--No flow many days of most months. Unpublished chemical analyses (partial record) for water years 1965-68 available from district office in Tucson, Ariz.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 25... | 1130 | E.50 | 2420 | 7.8 | 16.0 | 630 | 310 | 140 | 67 | 300 | 5.2 | 7.7 |
| NOV | | | | | | | | | | | | |
| 28... | 1200 | E.05 | 2360 | 7.8 | -- | 670 | 380 | 150 | 72 | 300 | 5.0 | 10 |
| DEC | | | | | | | | | | | | |
| 27... | 1415 | .03 | 1970 | 7.9 | 16.0 | 520 | 270 | 120 | 54 | 250 | 4.8 | 11 |
| JAN | | | | | | | | | | | | |
| 23... | 1410 | .00 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | | | | | | | |
| 21... | 1340 | E.06 | 2230 | 7.9 | 16.5 | 590 | 290 | 130 | 64 | 280 | 5.0 | 7.4 |
| MAR | | | | | | | | | | | | |
| 20... | 1245 | .05 | 2640 | 7.8 | 19.0 | 720 | 420 | 160 | 78 | 330 | 5.4 | 11 |
| APR | | | | | | | | | | | | |
| 24... | 1305 | E.05 | 2610 | 7.8 | 24.5 | 730 | 410 | 170 | 75 | 350 | 5.6 | 9.5 |
| MAY | | | | | | | | | | | | |
| 22... | 0940 | E.00 | 2240 | 7.9 | 21.0 | 570 | 300 | 120 | 65 | 300 | 5.5 | 8.8 |
| JUN | | | | | | | | | | | | |
| 19... | 1250 | .00 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | | | | |
| 24... | 1400 | .00 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | | | | |
| 28... | 1230 | .00 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| SEP | | | | | | | | | | | | |
| 25... | 1425 | .00 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

E Estimated.

09529200 BRUCE CHURCH DRAIN NEAR YUMA, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | BICAR-BONATE (MG/L AS HCO3) | CAR-BONATE (MG/L AS CO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER AC-FT) | NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) | BORON, DIS-SOLVED (UG/L AS B) | IRON, DIS-SOLVED (UG/L AS FE) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 25... | 390 | 0 | 620 | 250 | .8 | 27 | 1690 | 1610 | 2.30 | .17 | 380 | 20 |
| NOV | | | | | | | | | | | | |
| 28... | 350 | 0 | 620 | 250 | .8 | 21 | 1660 | 1600 | 2.26 | .01 | 400 | 20 |
| DEC | | | | | | | | | | | | |
| 27... | 310 | 0 | 510 | 210 | .8 | 21 | 1340 | 1330 | 1.82 | .00 | 320 | 30 |
| JAN | | | | | | | | | | | | |
| 23... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | | | | | | | |
| 21... | 360 | 0 | 580 | 230 | .9 | 24 | 1540 | 1490 | 2.09 | .02 | 360 | 10 |
| MAR | | | | | | | | | | | | |
| 20... | 370 | 0 | 690 | 300 | .8 | 15 | 1780 | 1770 | 2.42 | .06 | 450 | 20 |
| APR | | | | | | | | | | | | |
| 24... | 400 | 0 | 710 | 280 | .8 | 22 | 1760 | 1820 | 2.39 | .01 | 440 | 20 |
| MAY | | | | | | | | | | | | |
| 22... | 320 | 0 | 620 | 230 | .9 | 23 | 1530 | 1530 | 2.08 | .01 | 420 | 40 |
| JUN | | | | | | | | | | | | |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | | | | |
| 24... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | | | | |
| 28... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| SEP | | | | | | | | | | | | |
| 25... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

## 09529240 SOUTH GILA PUMP OUTLET CHANNEL NO. 2 NEAR YUMA, AZ

LOCATION.--Lat 32°42'31", long 114°31'45", in NW¼SW¼ sec.28, T.8 S., R.22 W., Yuma County, Hydrologic Unit 15070201, at gaging station 0.6 mi (1.0 km) upstream from outlet to Gila River, and 4 mi (6 km) east of Yuma.

PERIOD OF RECORD.--October 1968 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1976 to September 1977.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 03... | 0310 | 4.2 | 2100 | 8.0 | 23.0 | 310 | 82 | 78 | 28 | 335 | 8.3 |
| 10... | 0340 | 5.3 | 2100 | 7.8 | 25.5 | 310 | 76 | 76 | 29 | 335 | 8.3 |
| 17... | 0500 | 5.0 | 2110 | 7.8 | 21.0 | 310 | 74 | 76 | 29 | 335 | 8.3 |
| 24... | 0425 | 5.8 | 2100 | 7.8 | 21.0 | 310 | 77 | 76 | 29 | 335 | 8.3 |
| 31... | 0330 | 3.8 | 2110 | 7.8 | -- | 310 | 76 | 77 | 29 | 340 | 8.4 |
| NOV | | | | | | | | | | | |
| 07... | 0535 | 3.2 | 2100 | 7.8 | 21.0 | 310 | 76 | 75 | 30 | 335 | 8.3 |
| 14... | 0220 | 11 | 3570 | 7.7 | 20.0 | 560 | 296 | 129 | 58 | 550 | 10 |
| 21... | 0410 | 10 | 3510 | 7.7 | 19.5 | 550 | 291 | 125 | 58 | 540 | 10 |
| 28... | 0325 | 9.6 | 3480 | 7.6 | 20.0 | 550 | 289 | 124 | 58 | 540 | 10 |
| DEC | | | | | | | | | | | |
| 05... | 0150 | 28 | 3010 | 7.7 | 21.5 | 530 | 296 | 129 | 51 | 450 | 8.5 |
| 12... | 0340 | 31 | 3080 | 7.7 | 20.0 | 535 | 300 | 129 | 52 | 455 | 8.6 |
| 19... | 0430 | 29 | 3080 | 7.7 | 20.0 | 535 | 299 | 127 | 53 | 455 | 8.6 |
| 26... | 0120 | 28 | 3080 | 7.7 | 22.0 | 530 | 296 | 126 | 52 | 460 | 8.7 |
| JAN | | | | | | | | | | | |
| 02... | 0305 | 11 | 3540 | 7.7 | 21.0 | 555 | 299 | 128 | 57 | 550 | 10 |
| 09... | 0340 | 10 | 3470 | 7.6 | 21.0 | 540 | 284 | 124 | 56 | 535 | 10 |
| 16... | 0205 | 4.0 | 2090 | 7.8 | 19.5 | 310 | 76 | 75 | 30 | 335 | 8.3 |
| 23... | 0345 | 4.3 | 2090 | 7.8 | 21.0 | 310 | 76 | 75 | 30 | 335 | 8.3 |
| 30... | 0045 | 4.3 | 2100 | 7.8 | 21.0 | 310 | 74 | 76 | 29 | 340 | 8.4 |
| FEB | | | | | | | | | | | |
| 06... | 0305 | 11 | 2790 | 8.0 | 21.5 | 450 | 206 | 106 | 45 | 435 | 8.9 |
| 13... | 0315 | 24 | 3030 | 7.8 | 21.5 | 495 | 249 | 119 | 48 | 465 | 9.1 |
| 20... | 0525 | 35 | 2910 | 7.7 | 23.5 | 505 | 276 | 119 | 51 | 440 | 8.5 |
| 27... | 0400 | 35 | 2920 | 7.8 | 21.0 | 505 | 272 | 119 | 51 | 440 | 8.5 |
| MAR | | | | | | | | | | | |
| 06... | 0415 | 36 | 2920 | 7.7 | 22.0 | 505 | 274 | 120 | 50 | 440 | 8.5 |
| 13... | 0710 | 34 | 2940 | 7.7 | 23.0 | 505 | 276 | 126 | 46 | 445 | 8.6 |
| 20... | 0405 | 16 | 3340 | 7.9 | 20.5 | 525 | 274 | 121 | 54 | 515 | 9.8 |
| 27... | 0315 | 15 | 3340 | 7.8 | 26.0 | 525 | 276 | 121 | 54 | 515 | 9.8 |
| APR | | | | | | | | | | | |
| 03... | 0430 | 24 | 3050 | 7.8 | 22.0 | 495 | 250 | 122 | 46 | 470 | 9.2 |
| 10... | 0400 | 25 | 3040 | 7.8 | 20.5 | 495 | 254 | 119 | 48 | 465 | 9.1 |
| 17... | 0350 | 25 | 3050 | 7.8 | 24.0 | 495 | 252 | 118 | 49 | 470 | 9.2 |
| 24... | 0050 | 36 | 2930 | 7.7 | 21.5 | 505 | 276 | 119 | 51 | 440 | 8.5 |
| MAY | | | | | | | | | | | |
| 01... | 0340 | 27 | 3070 | 7.7 | 21.0 | 495 | 257 | 116 | 50 | 470 | 9.2 |
| 08... | 0400 | 25 | 3050 | 7.7 | 26.5 | 495 | 248 | 116 | 50 | 465 | 9.1 |
| 15... | 0350 | 35 | 2930 | 7.7 | 23.0 | 505 | 277 | 120 | 50 | 440 | 8.5 |
| 22... | 0330 | 27 | 3070 | 7.7 | 22.0 | 525 | 294 | 126 | 51 | 455 | 8.6 |
| 29... | 0055 | 40 | 3080 | 7.6 | 26.5 | 525 | 294 | 126 | 51 | 455 | 8.6 |
| JUN | | | | | | | | | | | |
| 05... | 0350 | 28 | 3070 | 7.7 | 22.0 | 525 | 292 | 124 | 52 | 455 | 8.7 |
| 12... | 0210 | 28 | 3080 | 7.6 | 25.5 | 525 | 292 | 126 | 51 | 455 | 8.6 |
| 19... | 0335 | 19 | 3300 | 7.8 | 26.0 | 520 | 276 | 120 | 54 | 510 | 9.7 |
| 26... | 0400 | 17 | 3270 | 7.7 | 23.5 | 510 | 266 | 119 | 52 | 505 | 9.7 |
| JUL | | | | | | | | | | | |
| 03... | 0405 | 17 | 3270 | 7.6 | 22.0 | 515 | 272 | 119 | 53 | 505 | 9.7 |
| 10... | 0450 | 18 | 3270 | 7.7 | 28.5 | 510 | 268 | 116 | 54 | 510 | 9.8 |
| 17... | 0345 | 19 | 2970 | 7.7 | 23.0 | 460 | 219 | 104 | 49 | 460 | 9.3 |
| 24... | 0310 | 20 | 2970 | 7.7 | 27.0 | 460 | 220 | 105 | 48 | 460 | 9.3 |
| 31... | 0550 | 20 | 2950 | 7.7 | 28.5 | 460 | 220 | 101 | 51 | 455 | 9.2 |
| AUG | | | | | | | | | | | |
| 07... | 0440 | 12 | 3530 | 7.7 | 23.0 | 550 | 299 | 125 | 58 | 545 | 10 |
| 14... | 0100 | 27 | 2990 | 7.8 | 27.0 | 485 | 242 | 120 | 45 | 460 | 9.1 |
| 21... | 0340 | 36 | 2810 | 7.7 | 28.0 | 450 | 217 | 106 | 45 | 430 | 8.8 |
| 28... | 0340 | 25 | 2970 | 7.8 | 23.0 | 480 | 247 | 114 | 48 | 455 | 9.0 |
| SEP | | | | | | | | | | | |
| 04... | 0230 | 33 | 2810 | 7.7 | 25.0 | 450 | 217 | 107 | 45 | 430 | 8.8 |
| 11... | 0415 | 34 | 2810 | 7.7 | 26.5 | 450 | 216 | 106 | 45 | 430 | 8.8 |
| 18... | 0225 | 34 | 2820 | 7.7 | 22.0 | 450 | 217 | 109 | 43 | 430 | 8.8 |
| 25... | 0200 | 11 | 2140 | 7.8 | 25.0 | 325 | 94 | 83 | 29 | 335 | 8.1 |

09529240 SOUTH GILA PUMP OUTLET CHANNEL NO. 2 NEAR YUMA, AZ--Continued

REMARKS.--Unpublished miscellaneous chemical analyses for water years 1965-68 available from district office in Tucson, Ariz.

COOPERATION.--Daily specific conductance record furnished by Bureau of Reclamation.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 3,750 micromhos Nov. 12; minimum daily, 2,090 micromhos Dec. 28, Jan. 15.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | POTASSIUM, DISSOLVED (MG/L AS K) | BICARBONATE (MG/L AS HCO3) | CARBONATE (MG/L AS CO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | SOLIDS, DISSOLVED (TONS PER AC-FT) | NITROGEN, NITRATE DISSOLVED (MG/L AS N) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 03... | 5.5 | 278 | 0 | 425 | 255 | 1.5 | 22 | 1310 | 1310 | 1.78 | 4.3 |
| 10... | 5.3 | 284 | 0 | 425 | 250 | 1.5 | 21 | 1310 | 1300 | 1.78 | 4.3 |
| 17... | 5.3 | 288 | 0 | 425 | 250 | 1.5 | 24 | 1310 | 1310 | 1.78 | 5.0 |
| 24... | 5.0 | 284 | 0 | 425 | 255 | 1.0 | 22 | 1300 | 1300 | 1.77 | 3.8 |
| 31... | 5.0 | 286 | 0 | 425 | 255 | 1.2 | 22 | 1310 | 1310 | 1.78 | 4.3 |
| NOV | | | | | | | | | | | |
| 07... | 5.0 | 286 | 0 | 425 | 252 | 1.0 | 22 | 1300 | 1300 | 1.77 | 4.3 |
| 14... | 6.8 | 322 | 0 | 390 | 780 | 1.0 | 24 | 2120 | 2100 | 2.88 | 1.4 |
| 21... | 6.6 | 316 | 0 | 385 | 765 | .8 | 22 | 2100 | 2060 | 2.86 | 1.2 |
| 28... | 6.6 | 318 | 0 | 385 | 760 | 1.0 | 22 | 2100 | 2060 | 2.86 | 1.4 |
| DEC | | | | | | | | | | | |
| 05... | 6.4 | 286 | 0 | 410 | 605 | 1.0 | 19 | 1840 | 1820 | 2.50 | .79 |
| 12... | 6.3 | 286 | 0 | 385 | 630 | .9 | 21 | 1870 | 1820 | 2.54 | .79 |
| 19... | 6.4 | 288 | 0 | 390 | 630 | .9 | 22 | 1860 | 1830 | 2.56 | .56 |
| 26... | 6.7 | 286 | 0 | 390 | 630 | .9 | 20 | 1880 | 1830 | 2.56 | .79 |
| JAN | | | | | | | | | | | |
| 02... | 6.6 | 312 | 0 | 385 | 780 | 1.0 | 21 | 2110 | 2090 | 2.87 | 1.1 |
| 09... | 6.8 | 312 | 0 | 385 | 750 | .8 | 22 | 2060 | 2040 | 2.80 | 1.1 |
| 16... | 5.1 | 286 | 0 | 425 | 252 | 1.3 | 20 | 1300 | 1300 | 1.77 | 4.5 |
| 23... | 5.4 | 286 | 0 | 420 | 255 | 1.0 | 22 | 1300 | 1300 | 1.77 | 4.5 |
| 30... | 5.1 | 288 | 0 | 425 | 255 | 1.0 | 22 | 1310 | 1320 | 1.78 | 4.7 |
| FEB | | | | | | | | | | | |
| 06... | 6.0 | 298 | 0 | 425 | 500 | .8 | 20 | 1710 | 1690 | 2.33 | 1.7 |
| 13... | 6.0 | 300 | 0 | 400 | 605 | 1.0 | 19 | 1830 | 1810 | 2.49 | .56 |
| 20... | 5.8 | 280 | 0 | 390 | 585 | 1.2 | 23 | 1760 | 1760 | 2.39 | .56 |
| 27... | 6.8 | 284 | 0 | 390 | 585 | .8 | 22 | 1790 | 1760 | 2.43 | .34 |
| MAR | | | | | | | | | | | |
| 06... | 5.9 | 282 | 0 | 390 | 585 | 1.0 | 22 | 1770 | 1760 | 2.41 | .50 |
| 13... | 6.3 | 280 | 0 | 395 | 590 | .9 | 22 | 1770 | 1770 | 2.41 | .72 |
| 20... | 6.8 | 306 | 0 | 390 | 705 | .9 | 23 | 2000 | 1970 | 2.72 | 1.0 |
| 27... | 7.0 | 304 | 0 | 390 | 705 | .9 | 22 | 2010 | 1970 | 2.73 | 1.0 |
| APR | | | | | | | | | | | |
| 03... | 6.3 | 298 | 0 | 400 | 605 | .7 | 22 | 1830 | 1820 | 2.49 | .56 |
| 10... | 6.2 | 294 | 0 | 400 | 605 | .9 | 20 | 1830 | 1810 | 2.49 | .90 |
| 17... | 6.3 | 296 | 0 | 400 | 605 | .8 | 20 | 1850 | 1820 | 2.52 | .63 |
| 24... | 6.2 | 280 | 0 | 395 | 585 | .8 | 22 | 1780 | 1760 | 2.42 | .56 |
| MAY | | | | | | | | | | | |
| 01... | 6.3 | 290 | 0 | 410 | 605 | 1.0 | 22 | 1850 | 1830 | 2.52 | 1.0 |
| 08... | 6.4 | 302 | 0 | 400 | 605 | .8 | 22 | 1830 | 1820 | 2.49 | .79 |
| 15... | 6.2 | 278 | 0 | 395 | 585 | 1.0 | 20 | 1760 | 1760 | 2.39 | .50 |
| 22... | 6.4 | 282 | 0 | 390 | 630 | 1.0 | 22 | 1850 | 1820 | 2.52 | .90 |
| 29... | 6.0 | 282 | 0 | 390 | 630 | 1.0 | 21 | 1860 | 1820 | 2.53 | .68 |
| JUN | | | | | | | | | | | |
| 05... | 6.6 | 284 | 0 | 390 | 630 | 1.0 | 21 | 1830 | 1820 | 2.49 | 1.1 |
| 12... | 6.4 | 284 | 0 | 390 | 630 | 1.0 | 22 | 1850 | 1830 | 2.52 | .90 |
| 19... | 6.5 | 298 | 0 | 395 | 690 | 1.1 | 20 | 1980 | 1950 | 2.69 | .45 |
| 26... | 6.5 | 298 | 0 | 390 | 680 | 1.0 | 22 | 1980 | 1930 | 2.69 | .95 |
| JUL | | | | | | | | | | | |
| 03... | 6.8 | 296 | 0 | 395 | 680 | .8 | 22 | 1950 | 1930 | 2.65 | .72 |
| 10... | 6.5 | 296 | 0 | 395 | 680 | 1.0 | 21 | 1940 | 1930 | 2.64 | 1.0 |
| 17... | 6.1 | 294 | 0 | 415 | 555 | 1.0 | 22 | 1780 | 1770 | 2.42 | 2.0 |
| 24... | 6.1 | 292 | 0 | 415 | 560 | .8 | 22 | 1780 | 1770 | 2.42 | 2.3 |
| 31... | 6.4 | 292 | 0 | 415 | 555 | 1.1 | 18 | 1770 | 1760 | 2.41 | 2.2 |
| AUG | | | | | | | | | | | |
| 07... | 6.4 | 306 | 0 | 385 | 770 | .9 | 23 | 2070 | 2070 | 2.82 | 1.2 |
| 14... | 6.4 | 296 | 0 | 415 | 575 | 1.0 | 20 | 1790 | 1790 | 2.43 | .86 |
| 21... | 6.1 | 284 | 0 | 415 | 510 | .8 | 18 | 1720 | 1680 | 2.34 | 2.1 |
| 28... | 6.2 | 284 | 0 | 410 | 575 | .9 | 20 | 1790 | 1770 | 2.43 | .45 |
| SEP | | | | | | | | | | | |
| 04... | 6.2 | 284 | 0 | 415 | 510 | 1.0 | 19 | 1720 | 1680 | 2.34 | 1.5 |
| 11... | 6.0 | 286 | 0 | 415 | 510 | 1.0 | 19 | 1730 | 1680 | 2.35 | 1.5 |
| 18... | 6.2 | 284 | 0 | 415 | 515 | 1.1 | 20 | 1700 | 1690 | 2.31 | 1.4 |
| 25... | 6.2 | 282 | 0 | 430 | 260 | 1.1 | 23 | 1330 | 1320 | 1.81 | 3.6 |

09529240 SOUTH GILA PUMP OUTLET CHANNEL NO. 2 NEAR YUMA, AZ--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2130 | 2130 | 3530 | 2110 | 2770 | 2940 | 3070 | 3100 | 3100 | 3290 | 2980 | 2830 |
| 2 | 2110 | 2130 | 3540 | 3600 | 2780 | 2940 | 3060 | 3080 | 3090 | 3290 | 2990 | 2840 |
| 3 | 2110 | 2120 | 2990 | 3500 | 2790 | 2940 | 3070 | 3070 | 3090 | 3290 | 2980 | 2850 |
| 4 | 2130 | 2120 | 3100 | 3480 | 2810 | 2940 | 3060 | 3080 | 3100 | 3280 | 3570 | 2830 |
| 5 | 2100 | 2120 | 3100 | 3500 | 2610 | 2940 | 3070 | 3070 | 3100 | 3310 | 3570 | 2830 |
| 6 | 2130 | 2280 | 3090 | 3510 | 2810 | 2940 | 3060 | 3070 | 3100 | 3300 | 3560 | 2830 |
| 7 | 2110 | 2120 | 3120 | 3510 | 2810 | 2950 | 2920 | 3070 | 3100 | 3280 | 3560 | 2830 |
| 8 | 2100 | 2140 | 3100 | 3510 | 2810 | 2940 | 3080 | 3070 | 3090 | 3290 | 2960 | 2830 |
| 9 | 2100 | 2110 | 3100 | 3520 | 3100 | 2940 | 3050 | 3070 | 3090 | 3290 | 2950 | 2830 |
| 10 | 2100 | 2610 | 3110 | 2110 | 3040 | 2940 | 3060 | 2940 | 3110 | 3290 | 2790 | 2830 |
| 11 | 2110 | 2600 | 3110 | 2110 | 3050 | 2950 | 3070 | 2930 | 3100 | 2960 | 2790 | 2830 |
| 12 | 2120 | 3750 | 3120 | 2110 | 3050 | 2940 | 3060 | 2950 | 3100 | 2970 | 2990 | 2820 |
| 13 | 2110 | 3620 | 3130 | 2110 | 3040 | 2940 | 3070 | 2930 | 3100 | 2970 | 3000 | 2830 |
| 14 | 2120 | 3580 | 3120 | 2110 | 2910 | 2960 | 3070 | 2940 | 3330 | 2980 | 3000 | 2820 |
| 15 | 2120 | 3590 | 3120 | 2090 | 2910 | 2950 | 3100 | 2950 | 3330 | 2990 | 2820 | 2830 |
| 16 | 2120 | 3580 | 3130 | 2110 | 2910 | 3360 | 3090 | 3110 | 3330 | 2990 | 2820 | 2830 |
| 17 | 2120 | 3560 | 3120 | 2120 | 2930 | 3370 | 3080 | 3110 | 3330 | 2990 | 2820 | 2830 |
| 18 | 2120 | 3450 | 3130 | 2110 | 2930 | 3370 | 3070 | 3110 | 3330 | 3000 | 2820 | 2830 |
| 19 | 2110 | 3560 | 3130 | 2110 | 2940 | 3370 | 3070 | 3110 | 3320 | 2970 | 2830 | 2840 |
| 20 | 2120 | 3550 | 3130 | 2110 | 2930 | 3360 | 2930 | 3120 | 3320 | 2980 | 2820 | 2840 |
| 21 | 2120 | 3560 | 3140 | 2110 | 2940 | 3360 | 2940 | 3100 | 3300 | 2970 | 2830 | 2840 |
| 22 | 2120 | 3560 | 3130 | 2100 | 2920 | 3350 | 2950 | 3100 | 3310 | 2970 | 2830 | 2850 |
| 23 | 2120 | 3570 | 3130 | 2100 | 2920 | 3360 | 2950 | 3100 | 3310 | 2970 | 2840 | 2840 |
| 24 | 2120 | 3540 | 3130 | 2110 | 2920 | 3360 | 2940 | 3110 | 3310 | 2980 | 2830 | 2160 |
| 25 | 2120 | 3550 | 3130 | 2110 | 2940 | 3370 | 2960 | 3110 | 3310 | 2970 | 2820 | 2160 |
| 26 | 2130 | 3550 | 3120 | 2110 | 2920 | 3370 | 2950 | 3100 | 3310 | 2980 | 3000 | 2150 |
| 27 | 2120 | 3550 | 3120 | 2100 | 2930 | 3360 | 2950 | 3110 | 3310 | 2970 | 3010 | 2160 |
| 28 | 2130 | 3540 | 2090 | 2690 | 2940 | 3360 | 2940 | 3110 | 3310 | 2980 | 2980 | 2990 |
| 29 | 2140 | 3530 | 2100 | 2690 | --- | 3370 | 2960 | 3110 | 3330 | 2970 | 3050 | 2970 |
| 30 | 2130 | 3520 | 2120 | 2110 | --- | 3370 | 2960 | 3110 | --- | 2970 | 3040 | 2970 |
| 31 | 2130 | --- | 2110 | 2730 | --- | 3360 | --- | 3100 | --- | 2970 | 2820 | --- |
| MEAN | 2120 | 3070 | 3010 | 2530 | 2910 | 3160 | 3020 | 3070 | 3220 | 3080 | 2990 | 2760 |

WTR YR 1978 MEAN 2910 MAX 3750 MIN 2090

09529300 WELLTON-MOHAWK MAIN OUTLET DRAIN NEAR YUMA, AZ

LOCATION (Revised).--Lat 32°44'33", long 114°26'10", in NE¼NW¼ sec.17, T.8 S., R.21 W., Yuma County, Hydrologic Unit 15070201, at gaging station, 7.8 mi (12.6 km) upstream from outlet to Gila River, and 11 mi (18 km) east of Yuma.

PERIOD OF RECORD.--October 1968 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1976 to September 1977.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 03... | 0240 | 274 | 5240 | 8.1 | 25.0 | 880 | 528 | 206 | 89 | 860 | 13 |
| 10... | 0400 | 292 | 5240 | 8.1 | 24.5 | 870 | 518 | 208 | 85 | 860 | 13 |
| 17... | 0300 | 298 | 5210 | 7.9 | 23.5 | 860 | 509 | 210 | 82 | 855 | 13 |
| 24... | 0400 | 306 | 5220 | 7.8 | 22.0 | 880 | 526 | 208 | 88 | 855 | 13 |
| 30... | 0240 | 274 | 5240 | 8.1 | 25.0 | 880 | 528 | 206 | 89 | 860 | 13 |
| 31... | 0520 | 298 | 5310 | 7.8 | -- | 890 | 534 | 220 | 83 | 870 | 13 |
| NOV | | | | | | | | | | | |
| 07... | 0445 | 303 | 5350 | 7.8 | 20.0 | 890 | 531 | 222 | 82 | 875 | 13 |
| 14... | 0430 | 302 | 5390 | 7.9 | 20.0 | 910 | 552 | 216 | 90 | 875 | 13 |
| 21... | 0255 | 297 | 5390 | 7.8 | 18.5 | 910 | 558 | 210 | 94 | 875 | 13 |
| 28... | 0300 | 236 | 5070 | 7.8 | 19.0 | 860 | 519 | 206 | 84 | 830 | 12 |
| DEC | | | | | | | | | | | |
| 05... | 0300 | 298 | 5260 | 7.9 | 20.0 | 900 | 541 | 214 | 89 | 860 | 12 |
| 12... | 0305 | 297 | 5250 | 7.8 | 20.0 | 890 | 531 | 218 | 84 | 860 | 13 |
| 19... | 0410 | 248 | 5280 | 7.8 | 19.0 | 900 | 544 | 222 | 84 | 860 | 12 |
| 26... | 0145 | 292 | 5250 | 7.8 | 21.5 | 890 | 538 | 216 | 85 | 860 | 13 |
| JAN | | | | | | | | | | | |
| 02... | 0240 | 290 | 5270 | 7.9 | 20.5 | 900 | 538 | 214 | 89 | 860 | 12 |
| 09... | 0115 | 291 | 5370 | 7.8 | 20.0 | 900 | 538 | 216 | 88 | 875 | 13 |
| 16... | 0600 | 292 | 5190 | 7.8 | -- | 880 | 521 | 208 | 88 | 850 | 12 |
| 23... | 0255 | 280 | 5260 | 7.8 | 20.0 | 910 | 548 | 220 | 88 | 860 | 12 |
| 30... | 0130 | 288 | 5460 | 7.8 | 21.5 | 920 | 561 | 222 | 89 | 895 | 13 |
| FEB | | | | | | | | | | | |
| 06... | 0150 | 276 | 5490 | 8.0 | 21.0 | 940 | 576 | 234 | 87 | 895 | 13 |
| 13... | 0035 | 280 | 5540 | 8.0 | 20.0 | 960 | 592 | 232 | 93 | 900 | 13 |
| 20... | 0045 | 279 | 5540 | 7.9 | 21.0 | 960 | 596 | 230 | 94 | 900 | 13 |
| 27... | 0205 | 279 | 5510 | 7.9 | 21.0 | 930 | 566 | 222 | 91 | 900 | 13 |
| MAR | | | | | | | | | | | |
| 06... | 0225 | 285 | 5500 | 7.9 | 20.5 | 930 | 568 | 234 | 84 | 900 | 13 |
| 13... | 0330 | 292 | 5550 | 7.8 | 21.0 | 960 | 601 | 238 | 89 | 900 | 13 |
| 20... | 0220 | 284 | 5460 | 7.8 | 21.0 | 940 | 584 | 226 | 91 | 895 | 13 |
| 27... | 0230 | 276 | 5470 | 7.9 | 25.5 | 940 | 582 | 226 | 91 | 895 | 13 |
| APR | | | | | | | | | | | |
| 03... | 0300 | 286 | 5480 | 8.1 | 21.5 | 940 | 576 | 230 | 89 | 895 | 13 |
| 10... | 0210 | 288 | 5520 | 8.1 | 21.0 | 950 | 582 | 228 | 93 | 900 | 13 |
| 17... | 0225 | 284 | 5610 | 8.0 | 21.5 | 940 | 582 | 234 | 87 | 920 | 13 |
| 24... | 0340 | 278 | 5700 | 7.8 | 23.0 | 970 | 618 | 238 | 91 | 920 | 13 |
| MAY | | | | | | | | | | | |
| 01... | 0220 | 291 | 5570 | 7.9 | 21.5 | 940 | 592 | 228 | 90 | 900 | 13 |
| 08... | 0240 | 268 | 5560 | 7.9 | 25.0 | 950 | 586 | 228 | 93 | 900 | 13 |
| 15... | 0315 | 266 | 5560 | 7.8 | 25.5 | 950 | 591 | 224 | 95 | 900 | 13 |
| 22... | 0200 | 264 | 5590 | 7.9 | 23.5 | 950 | 589 | 230 | 91 | 915 | 13 |
| 29... | 0130 | 261 | 5670 | 7.8 | 27.0 | 970 | 606 | 232 | 95 | 920 | 13 |
| JUN | | | | | | | | | | | |
| 05... | 0310 | 274 | 5520 | 7.8 | 24.0 | 950 | 592 | 234 | 89 | 900 | 13 |
| 12... | 0140 | 266 | 5520 | 7.8 | 26.0 | 940 | 582 | 240 | 83 | 900 | 13 |
| 19... | 0305 | 272 | 5490 | 7.9 | 26.5 | 930 | 571 | 228 | 88 | 895 | 13 |
| 26... | 0240 | 254 | 5470 | 7.8 | 24.5 | 930 | 582 | 228 | 88 | 895 | 13 |
| JUL | | | | | | | | | | | |
| 03... | 0320 | 262 | 5500 | 7.9 | 25.0 | 930 | 576 | 226 | 89 | 900 | 13 |
| 10... | 0300 | 246 | 5210 | 7.9 | 28.0 | 880 | 528 | 202 | 91 | 860 | 13 |
| 17... | 0245 | 240 | 5340 | 7.9 | 26.5 | 880 | 536 | 210 | 87 | 870 | 13 |
| 24... | 0220 | 291 | 5270 | 8.0 | 27.0 | 880 | 546 | 206 | 89 | 865 | 13 |
| 31... | 0310 | 234 | 5160 | 7.9 | 29.5 | 860 | 516 | 196 | 90 | 850 | 13 |
| AUG | | | | | | | | | | | |
| 07... | 0400 | 225 | 5390 | 8.0 | 26.5 | 880 | 532 | 204 | 90 | 880 | 13 |
| 14... | 0130 | 250 | 5250 | 7.9 | 27.0 | 870 | 536 | 198 | 91 | 865 | 13 |
| 21... | 0305 | 248 | 5240 | 7.8 | 26.5 | 860 | 522 | 196 | 90 | 865 | 13 |
| 28... | 0305 | 243 | 5290 | 7.8 | 25.0 | 880 | 544 | 194 | 96 | 865 | 13 |
| SEP | | | | | | | | | | | |
| 04... | 0600 | 236 | 5260 | 7.9 | 26.0 | 870 | 529 | 202 | 89 | 865 | 13 |
| 11... | 0330 | 233 | 5460 | 7.9 | 25.0 | 930 | 590 | 212 | 98 | 895 | 13 |
| 18... | 0210 | 233 | 5330 | 7.9 | 24.5 | 890 | 536 | 212 | 88 | 870 | 13 |
| 25... | 0125 | 239 | 5330 | 7.9 | 26.0 | 890 | 542 | 210 | 89 | 870 | 13 |

09529300 WELLTON-MOHAWK MAIN OUTLET DRAIN NEAR YUMA, AZ--Continued

REMARKS.--No flow Mar. 22-30. Unpublished chemical analyses (continuing record) for water years 1961-68 available from district office in Tucson, Ariz. Prior to Dec. 1, 1974, samples collected at gage site 1,000 ft (304.8 m) upstream.

COOPERATION.--Daily specific conductance record furnished by Bureau of Reclamation.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 5,840 micromhos Apr. 22; minimum daily, 4,900 micromhos Aug. 2.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | POTASSIUM, DISSOLVED (MG/L AS K) | BICARBONATE (MG/L AS HCO3) | CARBONATE (MG/L AS CO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | SOLIDS, DISSOLVED (TONS PER AC-FT) | NITROGEN, NITRATE DISSOLVED (MG/L AS N) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 03... | 8.6 | 430 | 0 | 930 | 1000 | 2.5 | 23 | 3450 | 3340 | 4.69 | 2.7 |
| 10... | 8.4 | 430 | 0 | 930 | 1000 | 2.6 | 24 | 3440 | 3340 | 4.68 | 2.7 |
| 17... | 8.1 | 428 | 0 | 920 | 990 | 2.0 | 24 | 3420 | 3320 | 4.65 | 2.9 |
| 24... | 8.5 | 432 | 0 | 925 | 1000 | 2.4 | 22 | 3470 | 3330 | 4.72 | 2.7 |
| 30... | 8.6 | 430 | 0 | 930 | 1000 | 2.5 | 23 | 3450 | 3340 | 4.69 | 2.7 |
| 31... | 8.2 | 434 | 0 | 935 | 1030 | 2.5 | 24 | 3510 | 3400 | 4.77 | 2.7 |
| NOV | | | | | | | | | | | |
| 07... | 8.7 | 438 | 0 | 935 | 1030 | 2.6 | 25 | 3520 | 3410 | 4.79 | 2.3 |
| 14... | 8.4 | 436 | 0 | 940 | 1050 | 2.4 | 26 | 3560 | 3430 | 4.84 | 2.5 |
| 21... | 8.7 | 430 | 0 | 940 | 1050 | 2.0 | 24 | 3520 | 3430 | 4.79 | 2.5 |
| 28... | 8.4 | 416 | 0 | 895 | 990 | 2.6 | 24 | 3370 | 3260 | 4.58 | 2.7 |
| DEC | | | | | | | | | | | |
| 05... | 8.7 | 438 | 0 | 925 | 1020 | 2.6 | 23 | 3490 | 3370 | 4.75 | 2.7 |
| 12... | 8.6 | 438 | 0 | 920 | 1020 | 2.4 | 23 | 3430 | 3360 | 4.66 | 2.9 |
| 19... | 8.6 | 434 | 0 | 925 | 1020 | 2.5 | 26 | 3540 | 3370 | 4.81 | 2.5 |
| 26... | 8.7 | 430 | 0 | 920 | 1020 | 2.6 | 24 | 3520 | 3360 | 4.79 | 2.5 |
| JAN | | | | | | | | | | | |
| 02... | 8.5 | 442 | 0 | 925 | 1020 | 2.5 | 25 | 3470 | 3370 | 4.72 | 2.5 |
| 09... | 8.7 | 442 | 0 | 930 | 1050 | 2.2 | 24 | 3530 | 3420 | 4.80 | 2.5 |
| 16... | 8.7 | 438 | 0 | 915 | 1000 | 2.4 | 25 | 3430 | 3320 | 4.66 | 2.5 |
| 23... | 8.7 | 442 | 0 | 920 | 1020 | 2.4 | 25 | 3510 | 3370 | 4.77 | 2.3 |
| 30... | 8.8 | 438 | 0 | 920 | 1090 | 2.2 | 26 | 3620 | 3480 | 4.92 | 2.5 |
| FEB | | | | | | | | | | | |
| 06... | 9.1 | 444 | 0 | 920 | 1110 | 2.0 | 26 | 3650 | 3510 | 4.96 | 2.5 |
| 13... | 9.1 | 448 | 0 | 925 | 1120 | 2.2 | 25 | 3690 | 3540 | 5.02 | 2.5 |
| 20... | 8.7 | 444 | 0 | 925 | 1120 | 2.6 | 24 | 3650 | 3540 | 4.96 | 2.7 |
| 27... | 9.2 | 444 | 0 | 920 | 1110 | 2.3 | 25 | 3640 | 3510 | 4.95 | 1.8 |
| MAR | | | | | | | | | | | |
| 06... | 9.1 | 442 | 0 | 920 | 1110 | 2.5 | 26 | 3610 | 3510 | 4.91 | 2.3 |
| 13... | 8.6 | 438 | 0 | 925 | 1120 | 1.8 | 25 | 3620 | 3540 | 4.92 | 2.9 |
| 20... | 8.9 | 434 | 0 | 920 | 1100 | 2.3 | 25 | 3580 | 3490 | 4.87 | 2.5 |
| 27... | 9.1 | 436 | 0 | 920 | 1100 | 2.5 | 24 | 3590 | 3490 | 4.88 | 2.5 |
| APR | | | | | | | | | | | |
| 03... | 8.6 | 444 | 0 | 920 | 1100 | 2.0 | 25 | 3570 | 3500 | 4.86 | 2.3 |
| 10... | 9.0 | 448 | 0 | 920 | 1110 | 2.4 | 26 | 3600 | 3520 | 4.90 | 2.7 |
| 17... | 8.7 | 436 | 0 | 930 | 1140 | 2.2 | 24 | 3680 | 3570 | 5.00 | 2.3 |
| 24... | 8.9 | 430 | 0 | 940 | 1170 | 2.2 | 26 | 3760 | 3620 | 5.11 | 2.5 |
| MAY | | | | | | | | | | | |
| 01... | 8.7 | 424 | 0 | 930 | 1130 | 2.4 | 25 | 3690 | 3540 | 5.02 | 2.7 |
| 08... | 8.8 | 444 | 0 | 930 | 1130 | 2.1 | 24 | 3680 | 3540 | 5.00 | 2.3 |
| 15... | 8.7 | 438 | 0 | 930 | 1120 | 2.5 | 26 | 3670 | 3530 | 4.99 | 2.3 |
| 22... | 8.5 | 440 | 0 | 940 | 1130 | 2.5 | 26 | 3650 | 3570 | 4.96 | 3.2 |
| 29... | 9.2 | 444 | 0 | 950 | 1160 | 2.5 | 24 | 3740 | 3620 | 5.09 | 2.7 |
| JUN | | | | | | | | | | | |
| 05... | 9.0 | 436 | 0 | 925 | 1120 | 2.6 | 24 | 3590 | 3530 | 4.88 | 2.9 |
| 12... | 8.5 | 436 | 0 | 925 | 1120 | 2.4 | 25 | 3650 | 3530 | 4.96 | 2.7 |
| 19... | 8.5 | 438 | 0 | 925 | 1110 | 2.5 | 24 | 3610 | 3510 | 4.91 | 2.0 |
| 26... | 8.5 | 424 | 0 | 925 | 1110 | 2.6 | 26 | 3600 | 3500 | 4.90 | 2.3 |
| JUL | | | | | | | | | | | |
| 03... | 8.9 | 432 | 0 | 925 | 1120 | 2.0 | 26 | 3660 | 3520 | 4.98 | 2.7 |
| 10... | 8.3 | 430 | 0 | 920 | 1010 | 2.0 | 26 | 3420 | 3340 | 4.65 | 2.5 |
| 17... | 8.3 | 420 | 0 | 920 | 1050 | 2.4 | 26 | 3480 | 3390 | 4.73 | 2.3 |
| 24... | 8.3 | 408 | 0 | 920 | 1040 | 2.2 | 25 | 3490 | 3370 | 4.75 | 2.7 |
| 31... | 8.3 | 420 | 0 | 910 | 1010 | 2.6 | 22 | 3390 | 3310 | 4.61 | 2.1 |
| AUG | | | | | | | | | | | |
| 07... | 8.4 | 424 | 0 | 940 | 1050 | 2.4 | 26 | 3700 | 3420 | 5.03 | 2.9 |
| 14... | 8.2 | 408 | 0 | 920 | 1030 | 2.6 | 25 | 3450 | 3350 | 4.69 | 2.5 |
| 21... | 8.0 | 412 | 0 | 920 | 1030 | 2.3 | 25 | 3490 | 3350 | 4.75 | 2.3 |
| 28... | 7.8 | 410 | 0 | 930 | 1040 | 2.3 | 25 | 3510 | 3370 | 4.77 | 2.3 |
| SEP | | | | | | | | | | | |
| 04... | 8.0 | 416 | 0 | 945 | 1020 | 2.3 | 25 | 3490 | 3370 | 4.75 | 2.5 |
| 11... | 8.2 | 414 | 0 | 955 | 1100 | 2.6 | 26 | 3630 | 3510 | 4.94 | 2.0 |
| 18... | 8.7 | 432 | 0 | 940 | 1040 | 2.2 | 26 | 3520 | 3410 | 4.79 | 1.8 |
| 25... | 8.7 | 424 | 0 | 940 | 1040 | 1.8 | 25 | 3540 | 3400 | 4.81 | 1.9 |

09529300 WELLTON-MOHAWK MAIN OUTLET DRAIN NEAR YUMA, AZ--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5290 | 5390 | 5460 | 5340 | 5500 | 5470 | 5480 | 5590 | 5680 | 5470 | 5150 | 5370 |
| 2 | 5300 | 5400 | 5430 | 5350 | 5530 | 5380 | 5540 | 5620 | 5640 | 5470 | 4900 | 5460 |
| 3 | 5330 | 5370 | 5440 | 5350 | 5520 | 5520 | 5530 | 5640 | 5610 | 5570 | 5160 | 5410 |
| 4 | 5430 | 5400 | 5360 | 5360 | 5510 | 5560 | 5520 | 5650 | 5610 | 5580 | 5390 | 5320 |
| 5 | 5360 | 5310 | 5360 | 5390 | 5520 | 5550 | 5540 | 5560 | 5600 | 5550 | 5500 | 5440 |
| 6 | 5460 | 5370 | 5360 | 5350 | 5540 | 5550 | 5490 | 5620 | 5600 | 5580 | 5520 | 5410 |
| 7 | 5250 | 5410 | 5450 | 5440 | 5540 | 5530 | 5510 | 5620 | 5550 | 5650 | 5460 | 5500 |
| 8 | 5420 | 5450 | 5450 | 5440 | 5560 | 5540 | 5560 | 5600 | 5530 | 5580 | 5360 | 5480 |
| 9 | 5410 | 5530 | 5430 | 5430 | 5590 | 5620 | 5590 | 5580 | 5530 | 5300 | 5270 | 5490 |
| 10 | 5370 | 5510 | 5410 | 5410 | 5600 | 5530 | 5560 | 5610 | 5580 | 5250 | 5260 | 5550 |
| 11 | 5350 | 5450 | 5360 | 5230 | 5630 | 5490 | 5550 | 5620 | 5590 | 5360 | 5200 | 5530 |
| 12 | 5300 | 5480 | 5320 | 5250 | 5610 | 5540 | 5570 | 5600 | 5590 | 5590 | 5240 | 5460 |
| 13 | 5290 | 5440 | 5410 | 5250 | 5570 | 5590 | 5680 | 5640 | 5510 | 5470 | 5270 | 5500 |
| 14 | 5290 | 5440 | 5370 | 5290 | 5560 | 5580 | 5590 | 5600 | 5570 | 5510 | 5300 | 5490 |
| 15 | 5280 | 5460 | 5350 | 5250 | 5540 | 5570 | 5590 | 5640 | 5600 | 5300 | 5270 | 5530 |
| 16 | 5280 | 5390 | 5410 | 5270 | 5560 | 5570 | 5640 | 5630 | 5600 | 5470 | 5290 | 5480 |
| 17 | 5250 | 5340 | 5380 | 5290 | 5610 | 5580 | 5650 | 5630 | 5570 | 5390 | 5300 | 5320 |
| 18 | 5400 | 5390 | 5380 | 5300 | 5580 | 5550 | 5620 | 5600 | 5480 | 5400 | 5280 | 5410 |
| 19 | 5420 | 5420 | 5380 | 5340 | 5580 | 5560 | 5610 | 5560 | 5530 | 5430 | 5290 | 5320 |
| 20 | 5400 | 5440 | 5360 | 5370 | 5570 | 5500 | 5690 | 5630 | 5590 | 5420 | 5290 | 5420 |
| 21 | 5410 | 5400 | 5380 | 5390 | 5600 | 5560 | 5730 | 5640 | 5630 | 5460 | 5300 | 5400 |
| 22 | 5280 | 5410 | 5260 | 5330 | 5540 | 5560 | 5840 | 5630 | 5570 | 5430 | 5370 | 5440 |
| 23 | 5290 | 5360 | 5340 | 5320 | 5540 | 5560 | 5760 | 5660 | 5580 | 5430 | 5360 | 5450 |
| 24 | 5260 | 5260 | 5340 | 5370 | 5530 | 5520 | 5750 | 5720 | 5510 | 5340 | 5400 | 5340 |
| 25 | 5290 | 5280 | 5370 | 5370 | 5570 | 5500 | 5720 | 5670 | 5490 | 5320 | 5330 | 5390 |
| 26 | 5310 | 5170 | 5330 | 5360 | 5550 | 5450 | 5700 | 5690 | 5540 | 5280 | 5410 | 5400 |
| 27 | 5270 | 5140 | 5330 | 5370 | 5550 | 5490 | 5650 | 5730 | 5500 | 5190 | 5440 | 5460 |
| 28 | 5370 | 5150 | 5330 | 5520 | 5580 | 5490 | 5660 | 5680 | 5530 | 5300 | 5340 | 5470 |
| 29 | 5330 | 5220 | 5310 | 5510 | --- | 5550 | 5640 | 5740 | 5600 | 5230 | 5430 | 5580 |
| 30 | 5340 | 5470 | 5350 | 5500 | --- | 5550 | 5640 | 5740 | 5560 | 5170 | 5390 | 5590 |
| 31 | 5340 | --- | 5350 | 5480 | --- | 5500 | --- | 5700 | --- | 5200 | 5380 | --- |
| MEAN | 5330 | 5380 | 5370 | 5360 | 5560 | 5530 | 5620 | 5640 | 5570 | 5410 | 5320 | 5450 |

WTR YR 1978 MEAN 5460 MAX 5840 MIN 4900

## 09529360 SOUTH GILA PUMP OUTLET CHANNEL NO. 1 NEAR YUMA, AZ

LOCATION.--Lat 32°42'24", long 114°33'19", in SW¼NE¼ sec.30, T.8 S., R.22 W., Yuma County, Hydrologic Unit 15070201, at gaging station, 0.2 mi (0.3 km) upstream from outlet to Gila River, and 4 mi (6 km) east of Yuma.

PERIOD OF RECORD.--October 1968 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1976 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 03... | 0320 | 38 | 3150 | 7.9 | 22.0 | 595 | 350 | 141 | 59 | 455 | 8.1 |
| 10... | 0330 | 39 | 3150 | 7.8 | 25.0 | 595 | 349 | 141 | 59 | 455 | 8.1 |
| 17... | 0520 | 37 | 3150 | 7.7 | 22.0 | 595 | 348 | 143 | 58 | 455 | 8.1 |
| 24... | 0445 | 37 | 3150 | 7.7 | 22.0 | 595 | 349 | 143 | 58 | 455 | 8.1 |
| 31... | 0340 | 35 | 3160 | 7.7 | -- | 595 | 349 | 142 | 58 | 455 | 8.1 |
| NOV | | | | | | | | | | | |
| 07... | 0545 | 35 | 3160 | 7.7 | 22.0 | 595 | 346 | 142 | 58 | 455 | 8.1 |
| 14... | 0200 | 36 | 2900 | 7.7 | 21.0 | 515 | 277 | 127 | 48 | 430 | 8.2 |
| 21... | 0420 | 36 | 2900 | 7.7 | 19.5 | 515 | 279 | 126 | 49 | 430 | 8.2 |
| 28... | 0340 | 39 | 2880 | 7.7 | 20.0 | 510 | 272 | 125 | 48 | 430 | 8.3 |
| DEC | | | | | | | | | | | |
| 05... | 0130 | 45 | 3130 | 7.8 | 21.0 | 590 | 342 | 149 | 53 | 455 | 8.2 |
| 12... | 0355 | 45 | 3130 | 7.7 | 20.0 | 590 | 344 | 145 | 55 | 455 | 8.2 |
| 19... | 0445 | 44 | 3120 | 7.8 | 20.5 | 580 | 332 | 143 | 54 | 455 | 8.2 |
| 26... | 0105 | 43 | 3120 | 7.7 | 21.5 | 585 | 338 | 141 | 57 | 455 | 8.2 |
| JAN | | | | | | | | | | | |
| 02... | 0315 | 44 | 3130 | 7.6 | 21.0 | 585 | 342 | 149 | 52 | 455 | 8.2 |
| 09... | 0400 | 43 | 3120 | 7.7 | 24.5 | 580 | 334 | 144 | 54 | 455 | 8.2 |
| 16... | 0220 | 36 | 2850 | 7.8 | 19.0 | 505 | 266 | 123 | 48 | 430 | 8.3 |
| 23... | 0355 | 36 | 2850 | 7.7 | 21.0 | 505 | 266 | 124 | 48 | 430 | 8.3 |
| 30... | 0100 | 35 | 2870 | 7.7 | 22.0 | 510 | 272 | 123 | 49 | 430 | 8.3 |
| FEB | | | | | | | | | | | |
| 06... | 0315 | 36 | 2850 | 7.9 | 21.5 | 510 | 269 | 123 | 49 | 430 | 8.3 |
| 13... | 0300 | 47 | 3150 | 7.8 | 21.0 | 565 | 316 | 139 | 53 | 470 | 8.6 |
| 20... | 0500 | 27 | 3210 | 7.8 | 22.0 | 575 | 319 | 135 | 58 | 470 | 8.5 |
| 27... | 0410 | 42 | 3140 | 7.8 | 20.0 | 565 | 316 | 139 | 53 | 470 | 8.6 |
| MAR | | | | | | | | | | | |
| 06... | 0405 | 42 | 3130 | 7.9 | 21.5 | 565 | 318 | 138 | 54 | 470 | 8.6 |
| 13... | 0725 | 43 | 3140 | 7.7 | 22.0 | 570 | 324 | 139 | 54 | 470 | 8.6 |
| 20... | 0415 | 42 | 3120 | 7.8 | 20.5 | 575 | 328 | 140 | 55 | 465 | 8.4 |
| 27... | 0325 | 39 | 3120 | 7.7 | 26.5 | 575 | 326 | 139 | 55 | 465 | 8.5 |
| APR | | | | | | | | | | | |
| 03... | 0435 | 39 | 3130 | 7.9 | 22.0 | 575 | 329 | 136 | 57 | 465 | 8.4 |
| 10... | 0410 | 41 | 3130 | 7.8 | 20.5 | 570 | 326 | 136 | 56 | 465 | 8.5 |
| 17... | 0340 | 41 | 3140 | 7.8 | 23.5 | 570 | 324 | 138 | 55 | 465 | 8.5 |
| 24... | 0040 | 41 | 3120 | 7.7 | 21.0 | 570 | 324 | 136 | 56 | 460 | 8.4 |
| MAY | | | | | | | | | | | |
| 01... | 0350 | 47 | 3130 | 7.7 | 21.0 | 575 | 332 | 135 | 58 | 465 | 8.4 |
| 08... | 0350 | 46 | 3120 | 7.7 | 25.5 | 575 | 322 | 138 | 56 | 465 | 8.4 |
| 15... | 0400 | 39 | 3110 | 7.7 | 24.0 | 570 | 326 | 138 | 55 | 460 | 8.4 |
| 22... | 0340 | 37 | 3120 | 7.7 | 21.5 | 575 | 329 | 139 | 55 | 460 | 8.4 |
| 29... | 0045 | 27 | 3120 | 7.6 | -- | 575 | 329 | 140 | 55 | 460 | 8.3 |
| JUN | | | | | | | | | | | |
| 05... | 0425 | 43 | 3110 | 7.7 | 22.0 | 575 | 329 | 139 | 55 | 460 | 8.4 |
| 12... | 0220 | 39 | 3160 | 7.7 | 25.5 | 575 | 324 | 138 | 56 | 470 | 8.5 |
| 19... | 0345 | 43 | 3150 | 7.7 | 26.0 | 570 | 326 | 139 | 54 | 465 | 8.5 |
| 26... | 0420 | 39 | 3130 | 7.7 | 24.0 | 570 | 328 | 135 | 57 | 460 | 8.4 |
| JUL | | | | | | | | | | | |
| 03... | 0425 | 37 | 3130 | 7.7 | 22.0 | 570 | 329 | 144 | 51 | 460 | 8.4 |
| 10... | 0440 | 43 | 3130 | 7.7 | 28.5 | 575 | 330 | 139 | 55 | 460 | 8.4 |
| 17... | 0400 | 39 | 3100 | 7.7 | 23.5 | 570 | 326 | 137 | 55 | 455 | 8.3 |
| 24... | 0320 | 36 | 3130 | 7.7 | 27.0 | 570 | 324 | 142 | 52 | 460 | 8.4 |
| 31... | 0540 | 41 | 3140 | 7.7 | 28.5 | 580 | 334 | 142 | 55 | 460 | 8.3 |
| AUG | | | | | | | | | | | |
| 07... | 0500 | 34 | 3130 | 7.7 | 23.5 | 580 | 332 | 141 | 55 | 460 | 8.3 |
| 14... | 0050 | 41 | 3120 | 7.7 | 26.5 | 575 | 330 | 140 | 55 | 455 | 8.3 |
| 21... | 0355 | 52 | 3110 | 7.7 | 28.0 | 580 | 336 | 139 | 57 | 450 | 8.1 |
| 28... | 0400 | 39 | 3110 | 7.7 | 23.0 | 580 | 334 | 142 | 55 | 450 | 8.1 |
| SEP | | | | | | | | | | | |
| 04... | 0240 | 39 | 3110 | 7.7 | 25.5 | 580 | 336 | 140 | 56 | 450 | 8.1 |
| 11... | 0430 | 36 | 3110 | 7.8 | 26.0 | 580 | 338 | 140 | 56 | 450 | 8.1 |
| 18... | 0235 | 25 | 3150 | 7.8 | 23.0 | 575 | 329 | 140 | 55 | 470 | 8.5 |
| 25... | 0210 | 33 | 3140 | 7.7 | 24.5 | 570 | 326 | 139 | 54 | 465 | 8.5 |

09529360 SOUTH GILA PUMP OUTLET CHANNEL NO. 1 NEAR YUMA, AZ--Continued

REMARKS.--Unpublished miscellaneous chemical analyses for water years 1966-68 available from district office in Tucson, Ariz.

COOPERATION.--Daily specific conductance record furnished by Bureau of Reclamation.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 3,330 micromhos Aug. 4; minimum daily, 2,830 micromhos Sept. 28, 29, 30.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | POTASSIUM, DISSOLVED (MG/L AS K) | BICARBONATE (MG/L AS HCO3) | CARBONATE (MG/L AS CO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | SOLIDS, DISSOLVED (TONS PER AC-FT) | NITROGEN, NITRATE DISSOLVED (MG/L AS N) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 03... | 6.8 | 298 | 0 | 470 | 610 | 1.1 | 21 | 1940 | 1920 | 2.64 | 1.0 |
| 10... | 6.6 | 300 | 0 | 470 | 610 | 1.0 | 20 | 1950 | 1910 | 2.65 | .79 |
| 17... | 6.5 | 302 | 0 | 470 | 610 | 1.2 | 21 | 1950 | 1920 | 2.65 | .68 |
| 24... | 6.5 | 300 | 0 | 470 | 610 | 1.0 | 21 | 1950 | 1910 | 2.65 | .50 |
| 31... | 6.5 | 300 | 0 | 470 | 610 | 1.2 | 21 | 1950 | 1920 | 2.65 | .86 |
| NOV | | | | | | | | | | | |
| 07... | 6.5 | 304 | 0 | 470 | 610 | 1.0 | 20 | 1940 | 1920 | 2.64 | .56 |
| 14... | 6.2 | 290 | 0 | 480 | 510 | 1.0 | 22 | 1800 | 1770 | 2.45 | .79 |
| 21... | 6.2 | 288 | 0 | 480 | 510 | 1.0 | 20 | 1810 | 1770 | 2.46 | .79 |
| 28... | 6.0 | 290 | 0 | 475 | 510 | .9 | 18 | 1820 | 1760 | 2.48 | .79 |
| DEC | | | | | | | | | | | |
| 05... | 6.6 | 302 | 0 | 465 | 610 | 1.0 | 17 | 1950 | 1910 | 2.65 | .79 |
| 12... | 6.5 | 300 | 0 | 465 | 610 | 1.0 | 18 | 1950 | 1910 | 2.65 | .72 |
| 19... | 6.4 | 302 | 0 | 465 | 605 | 1.0 | 18 | 1960 | 1900 | 2.67 | .56 |
| 26... | 6.8 | 302 | 0 | 465 | 605 | 1.2 | 20 | 1960 | 1900 | 2.67 | .68 |
| JAN | | | | | | | | | | | |
| 02... | 6.4 | 296 | 0 | 465 | 605 | .9 | 20 | 1930 | 1900 | 2.62 | .56 |
| 09... | 6.6 | 300 | 0 | 465 | 605 | 1.3 | 20 | 1940 | 1900 | 2.64 | .56 |
| 16... | 6.3 | 292 | 0 | 470 | 510 | 1.1 | 19 | 1790 | 1750 | 2.43 | .79 |
| 23... | 6.4 | 292 | 0 | 470 | 510 | .8 | 20 | 1780 | 1760 | 2.42 | .90 |
| 30... | 6.2 | 290 | 0 | 470 | 510 | 1.0 | 20 | 1770 | 1760 | 2.41 | .68 |
| FEB | | | | | | | | | | | |
| 06... | 6.4 | 294 | 0 | 470 | 510 | .8 | 20 | 1770 | 1760 | 2.41 | .79 |
| 13... | 6.4 | 304 | 0 | 465 | 605 | .9 | 20 | 1980 | 1910 | 2.69 | .90 |
| 20... | 6.0 | 312 | 0 | 435 | 630 | 1.2 | 19 | 1970 | 1920 | 2.68 | 2.1 |
| 27... | 7.0 | 304 | 0 | 465 | 605 | .8 | 20 | 1960 | 1910 | 2.67 | .86 |
| MAR | | | | | | | | | | | |
| 06... | 6.2 | 302 | 0 | 465 | 605 | 1.0 | 22 | 1940 | 1910 | 2.64 | .95 |
| 13... | 6.4 | 300 | 0 | 465 | 605 | .9 | 22 | 1940 | 1920 | 2.64 | 1.3 |
| 20... | 6.8 | 302 | 0 | 465 | 605 | .9 | 22 | 1940 | 1910 | 2.64 | .79 |
| 27... | 6.8 | 304 | 0 | 465 | 605 | 1.0 | 20 | 1940 | 1910 | 2.64 | .79 |
| APR | | | | | | | | | | | |
| 03... | 6.6 | 300 | 0 | 465 | 605 | .8 | 18 | 1930 | 1900 | 2.62 | .56 |
| 10... | 6.3 | 298 | 0 | 465 | 605 | .9 | 20 | 1940 | 1910 | 2.64 | 1.0 |
| 17... | 6.5 | 300 | 0 | 465 | 600 | .8 | 20 | 1950 | 1900 | 2.65 | 1.0 |
| 24... | 6.5 | 300 | 0 | 465 | 600 | .9 | 20 | 1930 | 1890 | 2.62 | .56 |
| MAY | | | | | | | | | | | |
| 01... | 6.6 | 296 | 0 | 465 | 605 | 1.0 | 20 | 1920 | 1910 | 2.61 | .79 |
| 08... | 6.6 | 308 | 0 | 465 | 605 | .8 | 22 | 1920 | 1910 | 2.61 | .56 |
| 15... | 6.4 | 298 | 0 | 465 | 600 | 1.0 | 20 | 1940 | 1890 | 2.64 | .50 |
| 22... | 6.5 | 300 | 0 | 465 | 600 | 1.0 | 22 | 1940 | 1900 | 2.64 | 1.0 |
| 29... | 6.2 | 300 | 0 | 465 | 600 | 1.0 | 20 | 1940 | 1900 | 2.64 | .90 |
| JUN | | | | | | | | | | | |
| 05... | 6.7 | 300 | 0 | 465 | 600 | 1.0 | 20 | 1900 | 1900 | 2.58 | .45 |
| 12... | 6.4 | 306 | 0 | 475 | 605 | 1.0 | 24 | 1960 | 1930 | 2.67 | 1.4 |
| 19... | 6.2 | 298 | 0 | 480 | 590 | 1.1 | 22 | 1940 | 1910 | 2.64 | .45 |
| 26... | 6.2 | 296 | 0 | 475 | 585 | 1.1 | 18 | 1950 | 1890 | 2.65 | .90 |
| JUL | | | | | | | | | | | |
| 03... | 6.6 | 294 | 0 | 480 | 585 | .8 | 22 | 1960 | 1900 | 2.67 | .79 |
| 10... | 6.4 | 298 | 0 | 475 | 590 | 1.0 | 21 | 1940 | 1900 | 2.64 | .45 |
| 17... | 6.3 | 298 | 0 | 470 | 585 | 1.2 | 17 | 1910 | 1880 | 2.60 | .56 |
| 24... | 6.4 | 300 | 0 | 475 | 590 | .8 | 20 | 1940 | 1900 | 2.64 | 2.1 |
| 31... | 6.8 | 300 | 0 | 475 | 595 | 1.1 | 18 | 1930 | 1900 | 2.62 | .72 |
| AUG | | | | | | | | | | | |
| 07... | 6.3 | 302 | 0 | 470 | 595 | 1.0 | 20 | 1900 | 1900 | 2.58 | 1.1 |
| 14... | 6.7 | 298 | 0 | 470 | 585 | .7 | 18 | 1940 | 1880 | 2.64 | .86 |
| 21... | 6.5 | 298 | 0 | 470 | 585 | .9 | 20 | 1940 | 1880 | 2.64 | .90 |
| 28... | 6.5 | 300 | 0 | 470 | 585 | 1.0 | 20 | 1940 | 1880 | 2.64 | .68 |
| SEP | | | | | | | | | | | |
| 04... | 6.6 | 298 | 0 | 470 | 585 | 1.0 | 20 | 1950 | 1880 | 2.65 | 1.0 |
| 11... | 6.4 | 296 | 0 | 470 | 585 | 1.0 | 19 | 1920 | 1880 | 2.61 | .90 |
| 18... | 6.4 | 300 | 0 | 490 | 590 | 1.1 | 22 | 1960 | 1930 | 2.67 | 1.1 |
| 25... | 6.4 | 298 | 0 | 485 | 585 | 1.1 | 22 | 1970 | 1910 | 2.68 | 1.1 |

09529360 SOUTH GILA PUMP OUTLET CHANNEL NO. 1 NEAR YUMA, AZ--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONLE-DAILY

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 3230 | 3200 | 3230 | 3160 | 2880 | 3150 | 3140 | 3160 | 3140 | 3160 | 3160 | 3060 |
| 2 | 3190 | 3180 | 3210 | 3160 | 2880 | 3150 | 3150 | 3140 | 3130 | 3150 | 3160 | 3130 |
| 3 | 3180 | 3200 | 3200 | 3160 | 2880 | 3140 | 3140 | 3140 | 3100 | 3160 | 3160 | 3140 |
| 4 | 3180 | 3190 | 3180 | 3150 | 2880 | 3150 | 3200 | 3140 | 3140 | 3150 | 3330 | 3130 |
| 5 | 3180 | 3210 | 3190 | 3170 | 2890 | 3150 | 3170 | 3150 | 3140 | 3170 | 3160 | 3140 |
| 6 | 3120 | 3190 | 3200 | 3160 | 2880 | 3160 | 3180 | 3150 | 3140 | 3160 | 3160 | 3130 |
| 7 | 3170 | 3190 | 3180 | 3160 | 2880 | 3150 | 3150 | 3140 | 3220 | 3150 | 3160 | 3130 |
| 8 | 3170 | 3200 | 3200 | 3150 | 2870 | 3140 | 3160 | 3140 | 3160 | 3150 | 3150 | 3130 |
| 9 | 3180 | 3190 | 3170 | 3150 | 3170 | 3150 | 3140 | 3160 | 3160 | 3140 | 3160 | 3140 |
| 10 | 3170 | 2920 | 3170 | 2890 | 3170 | 3150 | 3160 | 3160 | 3120 | 3140 | 3140 | 3140 |
| 11 | 3170 | 2900 | 3170 | 2890 | 3170 | 3150 | 3170 | 3140 | 3190 | 3160 | 3140 | 3140 |
| 12 | 3200 | 2910 | 3170 | 2890 | 3160 | 3140 | 3150 | 3130 | 3190 | 3140 | 3130 | 3140 |
| 13 | 3180 | 2910 | 3180 | 2890 | 3160 | 3150 | 3160 | 3120 | 3190 | 3150 | 3130 | --- |
| 14 | 3190 | 2910 | 3170 | 2900 | 3170 | 3200 | 3160 | 3130 | 3150 | 3150 | 3130 | --- |
| 15 | 3180 | 2930 | 3180 | 2890 | 3160 | 3150 | 3170 | 3140 | 3170 | 3150 | 3140 | --- |
| 16 | 3180 | 2920 | 3170 | 2890 | 3230 | 3140 | 3180 | 3140 | 3160 | 3150 | 3080 | 3190 |
| 17 | 3180 | 2920 | 3170 | 2900 | 3230 | 3150 | 3170 | 3140 | 3170 | 3130 | 3140 | 3200 |
| 18 | 3180 | 2920 | 3160 | 2890 | 3240 | 3150 | 3310 | 3140 | 3160 | 3150 | 3130 | 3190 |
| 19 | 3190 | 2920 | 3170 | 2890 | 3230 | 3150 | 3150 | 3130 | 3170 | 3140 | 3130 | 3170 |
| 20 | 3180 | 2920 | 3170 | 2890 | 3240 | 3150 | 3130 | 3150 | 3200 | 3160 | 3130 | 3160 |
| 21 | 3180 | 2920 | 3170 | 2890 | 3240 | 3140 | 3130 | 3140 | 3160 | 3160 | 3130 | 3170 |
| 22 | 3190 | 2930 | 3170 | 2890 | 3140 | 3130 | 3140 | 3150 | 3160 | 3160 | 3140 | 3170 |
| 23 | 3190 | 2930 | 3170 | 2890 | 3140 | 3140 | 3140 | 3140 | 3160 | 3150 | 3140 | 3170 |
| 24 | 3190 | 2930 | 3170 | 2890 | 3140 | 3140 | 3140 | 3140 | 3160 | 3160 | 3140 | 3160 |
| 25 | 3200 | 2920 | 3170 | 2890 | 3160 | 3140 | 3140 | 3090 | 3160 | 3150 | 3130 | 3170 |
| 26 | 3190 | 2930 | 3170 | 2880 | 3160 | 3150 | 3140 | 3130 | 3160 | 3160 | 3130 | 3150 |
| 27 | 3190 | 2940 | 3160 | 2910 | 3160 | 3140 | 3140 | 3150 | 3160 | 3120 | 3140 | 3150 |
| 28 | 3190 | 2920 | 3160 | 2900 | 3160 | 3140 | 3140 | 3140 | 3170 | 3130 | 3130 | 2830 |
| 29 | 3190 | 2920 | 3170 | 2890 | --- | 3140 | 3140 | 3150 | 3230 | 3170 | 3140 | 2830 |
| 30 | 3190 | 2920 | 3160 | 2890 | --- | 3140 | 3150 | 3140 | 2940 | 3150 | 3130 | 2830 |
| 31 | 3190 | --- | 3170 | 2880 | --- | 3140 | --- | 3130 | --- | 3150 | 3140 | --- |
| MEAN | 3180 | 3000 | 3180 | 2970 | 3100 | 3150 | 3160 | 3140 | 3160 | 3150 | 3150 | 3120 |

WTR YR 1978 MEAN 3120 MAX 3330 MIN 2830

## 09529440 SOUTH GILA PUMP OUTLET CHANNEL NO. 4 NEAR YUMA, AZ

LOCATION.--Lat 32°42'46", long 114°35'50", in NW¼NW¼ sec.26, T.8 S., R.23 W., Yuma County, Hydrologic Unit 15030107, at gaging station, 1.5 mi (2.4 km) upstream from outlet to Colorado River, and 1.5 mi (2.4 km) east of Yuma.

PERIOD OF RECORD.--October 1968 to current year.

REMARKS.--No flow for most of each year. Unpublished miscellaneous chemical analyses for water years 1966-68 available from district office in Tucson, Ariz.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO |
|---|---|---|---|---|---|---|---|---|---|---|---|
| DEC | | | | | | | | | | | |
| 05... | 1015 | 7.8 | 6390 | 7.5 | -- | 1320 | 992 | 306 | 135 | 900 | 11 |
| 12... | 0405 | 8.8 | 6060 | 7.5 | 21.0 | 1390 | 1120 | 332 | 137 | 800 | 9.3 |
| 19... | 0455 | 13 | 6670 | 7.5 | 21.0 | 1480 | 1175 | 336 | 156 | 935 | 11 |
| 26... | 0050 | 13 | 6670 | 7.6 | 22.0 | 1480 | 1175 | 336 | 156 | 930 | 11 |
| FEB | | | | | | | | | | | |
| 20... | 0430 | 21 | 6440 | 7.6 | 24.5 | 1380 | 1070 | 334 | 133 | 900 | 11 |
| 27... | 0425 | 20 | 6440 | 7.5 | 20.5 | 1380 | 1070 | 328 | 137 | 900 | 11 |
| MAR | | | | | | | | | | | |
| 13... | 0735 | 12 | 5490 | 7.5 | 23.0 | 1110 | 810 | 272 | 105 | 775 | 10 |
| 20... | 0445 | 8.5 | 7810 | 7.4 | 20.0 | 1770 | 1440 | 420 | 176 | 1050 | 11 |
| 27... | 0335 | 8.5 | 7820 | 7.5 | 26.5 | 1770 | 1430 | 420 | 176 | 1050 | 11 |
| APR | | | | | | | | | | | |
| 03... | 0445 | 16 | 6890 | 7.7 | 23.5 | 1480 | 1150 | 352 | 146 | 970 | 11 |
| 10... | 0425 | 15 | 6880 | 7.7 | 21.0 | 1460 | 1120 | 346 | 145 | 970 | 11 |
| 17... | 0330 | 18 | 6400 | 7.5 | 23.5 | 1370 | 1060 | 328 | 134 | 895 | 11 |
| 24... | 0020 | 18 | 6430 | 7.4 | 22.0 | 1360 | 1070 | 328 | 137 | 900 | 11 |
| MAY | | | | | | | | | | | |
| 29... | 0025 | 7.8 | 7710 | 7.3 | 26.0 | 1740 | 1390 | 412 | 173 | 1040 | 11 |
| JUN | | | | | | | | | | | |
| 05... | 0510 | 7.8 | 7700 | 7.4 | 23.5 | 1740 | 1390 | 412 | 173 | 1040 | 11 |
| 12... | 0235 | 7.8 | 7630 | 7.4 | 25.5 | 1730 | 1380 | 404 | 176 | 1030 | 11 |
| JUL | | | | | | | | | | | |
| 03... | 0450 | 4.4 | 4360 | 7.6 | 25.0 | 930 | 704 | 234 | 84 | 620 | 8.8 |
| 10... | 0430 | 3.8 | 4460 | 7.7 | 29.0 | 940 | 702 | 240 | 83 | 635 | 9.0 |
| 17... | 0420 | 3.8 | 4530 | 7.6 | 25.0 | 960 | 716 | 248 | 83 | 660 | 9.3 |
| 24... | 0355 | 3.8 | 4550 | 7.6 | 28.0 | 960 | 714 | 252 | 81 | 665 | 9.3 |
| 31... | 0505 | 3.8 | 4560 | 7.6 | 29.5 | 960 | 712 | 236 | 90 | 670 | 9.4 |
| AUG | | | | | | | | | | | |
| 07... | 0515 | 10 | 5460 | 7.5 | 24.5 | 1120 | 820 | 278 | 104 | 785 | 10 |
| 14... | 0035 | 13 | 6060 | 7.5 | 26.5 | 1320 | 1016 | 318 | 128 | 845 | 10 |
| 21... | 0410 | 13 | 6030 | 7.6 | 28.5 | 1320 | 1016 | 314 | 130 | 840 | 10 |

| DATE | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | BICAR-BONATE (MG/L AS HCO3) | CAR-BONATE (MG/L AS CO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER AC-FT) | NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| DEC | | | | | | | | | | | |
| 05... | 10 | 400 | 0 | 565 | 1670 | .8 | 20 | 4070 | 3800 | 5.54 | .11 |
| 12... | 9.9 | 328 | 0 | 775 | 1475 | .7 | 20 | 4020 | 3710 | 5.47 | .18 |
| 19... | 9.5 | 372 | 0 | 750 | 1710 | .7 | 20 | 4400 | 4100 | 5.98 | .14 |
| 26... | 9.8 | 372 | 0 | 750 | 1710 | .5 | 22 | 4440 | 4100 | 6.04 | .20 |
| FEB | | | | | | | | | | | |
| 20... | 9.4 | 382 | 0 | 650 | 1675 | .9 | 22 | 4220 | 3910 | 5.74 | .09 |
| 27... | 9.7 | 382 | 0 | 650 | 1675 | .8 | 20 | 4260 | 3910 | 5.79 | .14 |
| MAR | | | | | | | | | | | |
| 13... | 8.2 | 366 | 0 | 640 | 1310 | .5 | 22 | 3560 | 3310 | 4.84 | .25 |
| 20... | 10 | 408 | 0 | 660 | 2150 | .5 | 23 | 4880 | 4690 | 6.64 | .23 |
| 27... | 11 | 420 | 0 | 660 | 2150 | .9 | 22 | 4920 | 4700 | 6.69 | .23 |
| APR | | | | | | | | | | | |
| 03... | 9.5 | 408 | 0 | 610 | 1850 | .4 | 24 | 4490 | 4160 | 6.11 | .25 |
| 10... | 9.8 | 412 | 0 | 590 | 1850 | .4 | 25 | 4240 | 4140 | 5.77 | .23 |
| 17... | 9.3 | 380 | 0 | 645 | 1650 | .4 | 19 | 4040 | 3870 | 5.49 | .16 |
| 24... | 9.3 | 378 | 0 | 650 | 1660 | .5 | 22 | 4040 | 3890 | 5.49 | .23 |
| MAY | | | | | | | | | | | |
| 29... | 11 | 424 | 0 | 665 | 2125 | .8 | 22 | 5030 | 4660 | 6.84 | .27 |
| JUN | | | | | | | | | | | |
| 05... | 10 | 424 | 0 | 665 | 2125 | .5 | 22 | 5120 | 4660 | 6.96 | .25 |
| 12... | 10 | 424 | 0 | 660 | 2100 | .4 | 24 | 5290 | 4610 | 7.19 | .32 |
| JUL | | | | | | | | | | | |
| 03... | 7.6 | 276 | 0 | 840 | 850 | .6 | 22 | 3200 | 2800 | 4.35 | .41 |
| 10... | 7.5 | 290 | 0 | 835 | 870 | .5 | 20 | 3000 | 2840 | 4.08 | .41 |
| 17... | 7.5 | 298 | 0 | 855 | 900 | .7 | 20 | 3000 | 2920 | 4.08 | .41 |
| 24... | 7.5 | 300 | 0 | 855 | 910 | .6 | 18 | 3030 | 2940 | 4.12 | .86 |
| 31... | 7.6 | 302 | 0 | 855 | 910 | .8 | 19 | 3020 | 2940 | 4.11 | .45 |
| AUG | | | | | | | | | | | |
| 07... | 8.3 | 366 | 0 | 650 | 1330 | .4 | 26 | 3560 | 3360 | 4.84 | .32 |
| 14... | 8.5 | 370 | 0 | 640 | 1550 | .5 | 20 | 4050 | 3690 | 5.51 | .23 |
| 21... | 8.6 | 370 | 0 | 640 | 1540 | .5 | 24 | 4060 | 3680 | 5.52 | .29 |

## 09530000 RESERVATION MAIN DRAIN NO. 4 AT YUMA, AZ

LOCATION.--Lat 32°44'09", long 114°37'16", in NW¼SE¼ sec.26, T.16 S., R.22 E., San Bernardino meridian, in California, Imperial County, Hydrologic Unit 15030107, at gaging station, at railroad culvert, 0.2 mi (0.3 km) upstream from crossing of U.S. Highway 80, and 0.7 mi (1.1 km) north of Yuma.

PERIOD OF RECORD.--October 1968 to current year.

REMARKS.--Unpublished miscellaneous chemical analyses for water years 1962-68 available from district office in Tucson, Ariz.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 12... | 0800 | -- | 2150 | -- | 21.0 | -- | -- | -- | -- | -- | -- | -- |
| 26... | 1405 | 42 | 2000 | 7.8 | 23.5 | 570 | 350 | 150 | 48 | 210 | 3.8 | 5.6 |
| NOV | | | | | | | | | | | | |
| 28... | 1125 | 43 | 1990 | 7.7 | 19.5 | 620 | 390 | 160 | 54 | 210 | 3.7 | 5.3 |
| DEC | | | | | | | | | | | | |
| 07... | 0800 | -- | 1950 | -- | 15.0 | -- | -- | -- | -- | -- | -- | 5.8 |
| 27... | 1050 | 40 | 1990 | 7.7 | 19.0 | 610 | 380 | 160 | 50 | 220 | 3.9 | 6.5 |
| JAN | | | | | | | | | | | | |
| 23... | 1135 | 33 | 2000 | 7.7 | 17.0 | 580 | 360 | 150 | 49 | 240 | 4.4 | 5.6 |
| FEB | | | | | | | | | | | | |
| 01... | 0800 | -- | 2000 | -- | 16.0 | -- | -- | -- | -- | -- | -- | -- |
| 21... | 1035 | 41 | 1990 | 7.7 | 17.0 | 550 | 330 | 140 | 49 | 220 | 4.1 | 5.5 |
| MAR | | | | | | | | | | | | |
| 20... | 1130 | 43 | 2020 | 7.8 | 22.0 | 610 | 390 | 160 | 51 | 230 | 4.1 | 5.8 |
| APR | | | | | | | | | | | | |
| 24... | 1100 | 46 | 2020 | 7.7 | 22.0 | 580 | 350 | 150 | 49 | 240 | 4.4 | 5.6 |
| MAY | | | | | | | | | | | | |
| 03... | 0800 | -- | 2200 | -- | 22.0 | -- | -- | -- | -- | -- | -- | 7.7 |
| 22... | 1005 | 52 | 1990 | 7.7 | 23.0 | 610 | 380 | 160 | 50 | 220 | 3.9 | 5.6 |
| JUN | | | | | | | | | | | | |
| 19... | 0935 | 46 | 2040 | 7.7 | 25.0 | 620 | -- | 160 | 54 | 220 | 3.8 | 6.3 |
| 28... | 0800 | -- | 2100 | -- | 24.0 | -- | -- | -- | -- | -- | -- | 5.9 |
| JUL | | | | | | | | | | | | |
| 24... | 0930 | 49 | 2050 | 7.6 | 27.0 | 610 | 390 | 160 | 52 | 240 | 4.2 | 5.7 |
| AUG | | | | | | | | | | | | |
| 28... | 1020 | 54 | 2040 | 7.7 | 25.0 | 590 | 420 | 160 | 46 | 230 | 4.1 | 5.8 |
| SEP | | | | | | | | | | | | |
| 25... | 1015 | 66 | 2220 | 7.6 | 24.0 | 590 | 360 | 170 | 41 | 260 | 4.6 | 5.8 |

09530000 RESERVATION MAIN DRAIN NO. 4 AT YUMA, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | BICAR-BONATE (MG/L AS HCO3) | CAR-BONATE (MG/L AS CO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER AC-FT) | NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) | BORON, DIS-SOLVED (UG/L AS B) | IRON, DIS-SOLVED (UG/L AS FE) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 26... | 270 | 0 | 500 | 240 | .5 | 22 | 1340 | 1310 | 1.82 | .31 | 250 | 20 |
| NOV | | | | | | | | | | | | |
| 28... | 280 | 0 | 470 | 240 | .4 | 21 | 1340 | 1300 | 1.82 | .40 | 260 | 20 |
| DEC | | | | | | | | | | | | |
| 07... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 27... | 270 | 0 | 510 | 240 | .5 | 22 | 1330 | 1340 | 1.81 | .39 | 250 | 10 |
| JAN | | | | | | | | | | | | |
| 23... | 260 | 0 | 500 | 230 | .5 | 22 | 1350 | 1330 | 1.84 | .27 | 250 | 0 |
| FEB | | | | | | | | | | | | |
| 01... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 21... | 270 | 0 | 480 | 230 | .6 | 22 | 1310 | 1280 | 1.78 | .22 | 260 | 20 |
| MAR | | | | | | | | | | | | |
| 20... | 270 | 0 | 480 | 240 | .5 | 20 | 1350 | 1320 | 1.84 | .27 | 260 | 10 |
| APR | | | | | | | | | | | | |
| 24... | 280 | 0 | 490 | 250 | .5 | 21 | 1350 | 1350 | 1.84 | .25 | 260 | 20 |
| MAY | | | | | | | | | | | | |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 22... | 280 | 0 | 490 | 230 | .5 | 20 | 1340 | 1320 | 1.82 | .28 | 280 | 30 |
| JUN | | | | | | | | | | | | |
| 19... | -- | -- | 490 | 240 | .5 | 23 | 1360 | 1330 | 1.85 | .40 | 250 | 10 |
| 28... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | | | | |
| 24... | 270 | 0 | 500 | 250 | .5 | 26 | 1370 | 1370 | 1.86 | .38 | 270 | 30 |
| AUG | | | | | | | | | | | | |
| 28... | 210 | 0 | 540 | 260 | .4 | 23 | 1350 | 1370 | 1.84 | .08 | 200 | 20 |
| SEP | | | | | | | | | | | | |
| 25... | 280 | 0 | 550 | 260 | .5 | 22 | 1540 | 1470 | 2.09 | .46 | 270 | 20 |

09530000 RESERVATION MAIN DRAIN NO. 4 AT YUMA, AZ--Continued

PESTICIDE ANALYSES, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | PCB, TOTAL (UG/L) | NAPHTHALENES, POLYCHLOR. TOTAL (UG/L) | ALDRIN, TOTAL (UG/L) | ATRAZINE, TOTAL (UG/L) | CHLORDANE, TOTAL (UG/L) | DDD, TOTAL (UG/L) | DDE, TOTAL (UG/L) | DDT, TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|---|
| DEC | | | | | | | | | |
| 07... | 0800 | .0 | .00 | .00 | .00 | .0 | .00 | .00 | .00 |
| MAY | | | | | | | | | |
| 03... | 0800 | .0 | .00 | .00 | .00 | .0 | .00 | .00 | .00 |
| JUN | | | | | | | | | |
| 28... | 0800 | .0 | .00 | .00 | .00 | .0 | .00 | .00 | .00 |

| DATE | DIAZINON, TOTAL (UG/L) | DIELDRIN TOTAL (UG/L) | ENDOSULFAN, TOTAL (UG/L) | ENDRIN, TOTAL (UG/L) | ETHION, TOTAL (UG/L) | HEPTACHLOR, TOTAL (UG/L) | HEPTACHLOR EPOXIDE TOTAL (UG/L) | LINDANE TOTAL (UG/L) | MALATHION, TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|---|
| DEC | | | | | | | | | |
| 07... | .00 | .00 | .01 | .00 | .00 | .00 | .00 | .00 | .00 |
| MAY | | | | | | | | | |
| 03... | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| JUN | | | | | | | | | |
| 28... | .01 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |

09530000 RESERVATION MAIN DRAIN NO. 4 AT YUMA, AZ--Continued

PESTICIDE ANALYSES, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | METHYL PARA-THION, TOTAL (UG/L) | METHYL TRI-THION, TOTAL (UG/L) | PARA-THION, TOTAL (UG/L) | TOX-APHENE, TOTAL (UG/L) | TOTAL TRI-THION (UG/L) | 2,4-D, TOTAL (UG/L) | 2,4,5-T TOTAL (UG/L) | SILVEX, TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|
| DEC | | | | | | | | |
| 07... | .00 | .00 | .00 | 0 | .00 | .07 | .00 | .00 |
| MAY | | | | | | | | |
| 03... | .00 | .00 | .00 | 0 | .00 | .03 | .00 | .00 |
| JUN | | | | | | | | |
| 28... | .00 | .00 | .01 | 0 | .00 | .02 | .00 | .00 |

## 09530200 YUMA MESA OUTLET DRAIN AT YUMA, AZ

LOCATION.--Lat 32°43'48", long 114°39'27", in SE¼SW¼ sec.28, T.16 S., R.22 E., San Bernardino meridian, in Arizona, Yuma County, Hydrologic Unit 15030107, at gaging station, 0.3 mi (0.5 km) from outlet to Colorado River, and 0.5 mi (0.8 km) west of Joe Henry Memorial Park in Yuma, Ariz.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 03... | 0800 | 48 | 2230 | 7.7 | 26.0 | 360 | 170 | 96 | 30 | 330 | 7.5 | 4.9 |
| 11... | 0800 | 54 | 2230 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 17... | 0755 | 48 | 2230 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 25... | 0800 | 48 | 2230 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 31... | 0755 | 48 | 2230 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | | | | | | | |
| 08... | 0930 | 47 | 2230 | 7.5 | 26.0 | 370 | 170 | 94 | 33 | 340 | 7.7 | 5.4 |
| 14... | 0750 | 53 | 2190 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 21... | 0800 | 48 | 2190 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 28... | 0800 | 48 | 2190 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| DEC | | | | | | | | | | | | |
| 05... | 0750 | 48 | 2180 | 7.5 | 26.0 | 390 | 200 | 100 | 33 | 310 | 6.9 | 4.8 |
| JAN | | | | | | | | | | | | |
| 03... | 0815 | .00 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 09... | 0820 | .00 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 16... | 0825 | .00 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 23... | 0830 | .00 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 27... | 0825 | 51 | 2130 | 7.4 | 26.0 | 410 | 210 | 110 | 33 | 340 | 7.3 | 5.2 |
| 30... | 0750 | 51 | 2160 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | | | | | | | |
| 06... | 0755 | 47 | 2160 | 7.7 | 26.0 | 380 | 190 | 98 | 34 | 330 | 7.3 | 5.2 |
| 13... | 0800 | 48 | 2170 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 21... | 0755 | 45 | 2160 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 27... | 0800 | 47 | 2160 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MAR | | | | | | | | | | | | |
| 07... | 0755 | 41 | 2160 | 7.6 | 25.0 | 370 | 170 | 98 | 31 | 330 | 7.4 | 5.5 |
| 13... | 0800 | 46 | 2160 | -- | 25.5 | -- | -- | -- | -- | -- | -- | -- |
| 20... | 0800 | 47 | 2160 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 27... | 0900 | .00 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 28... | 0800 | 47 | 2150 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| APR | | | | | | | | | | | | |
| 03... | 0755 | 46 | 2160 | 7.7 | 25.5 | 380 | 180 | 100 | 32 | 330 | 7.4 | 4.9 |
| 10... | 0800 | 47 | 2150 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 17... | 0800 | 46 | 2160 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 24... | 0800 | 46 | 2160 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MAY | | | | | | | | | | | | |
| 01... | 0800 | 51 | 2160 | 7.6 | 26.0 | 380 | 180 | 100 | 32 | 310 | 6.9 | 5.2 |
| 08... | 0800 | 54 | 2170 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 15... | 0800 | 54 | 2170 | -- | 27.5 | -- | -- | -- | -- | -- | -- | -- |
| 22... | 0800 | 54 | 2170 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 30... | 0755 | 54 | 2170 | -- | 26.0 | -- | -- | -- | -- | -- | -- | -- |
| JUN | | | | | | | | | | | | |
| 05... | 0800 | 54 | 2170 | 7.5 | 26.5 | 390 | 190 | 100 | 33 | 340 | 7.5 | 5.2 |
| 12... | 0800 | 47 | 2180 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 19... | 0750 | 54 | 2170 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 26... | 0750 | 53 | 2170 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | | | | |
| 05... | 0815 | 54 | 2170 | 7.6 | 25.5 | 390 | 200 | 100 | 33 | 330 | 7.3 | 5.3 |
| 10... | 0750 | 48 | 2170 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 17... | 0800 | 53 | 2140 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 24... | 0800 | 49 | 2140 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 31... | 0750 | 51 | 2170 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | | | | |
| 07... | 1425 | 47 | 2130 | 7.5 | 27.0 | 420 | 280 | 110 | 35 | 300 | 6.4 | 5.3 |
| 14... | 0815 | 51 | 2140 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 21... | 0800 | 51 | 2150 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 28... | 0800 | 54 | 2150 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| SEP | | | | | | | | | | | | |
| 05... | 0835 | 54 | 2150 | 7.5 | 26.0 | 370 | 170 | 98 | 31 | 330 | 7.4 | 4.7 |
| 11... | 0800 | 53 | 2140 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 18... | 1500 | 54 | 2140 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 25... | 0750 | 53 | 2150 | -- | -- | -- | -- | -- | -- | -- | -- | -- |

09530200 YUMA MESA OUTLET DRAIN AT YUMA, AZ

PERIOD OF RECORD.--July 1972 to current year.

REMARKS.--No flow Dec. 28 thru Jan. 24; Feb. 1, 2, Mar. 1 thru 5, 27.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | BICARBONATE (MG/L AS HCO3) | CARBONATE (MG/L AS CO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | SOLIDS, DISSOLVED (TONS PER AC-FT) | NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) | BORON, DISSOLVED (UG/L AS B) | IRON, DISSOLVED (UG/L AS FE) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 03... | 240 | 0 | 440 | 330 | .9 | 26 | 1340 | 1360 | 1.82 | | 500 | 10 |
| 11... | -- | -- | -- | -- | -- | -- | -- | -- | -- | | -- | -- |
| 17... | -- | -- | -- | -- | -- | -- | -- | -- | -- | | -- | -- |
| 25... | -- | -- | -- | -- | -- | -- | -- | -- | -- | | -- | -- |
| 31... | -- | -- | -- | -- | -- | -- | -- | -- | -- | | -- | -- |
| NOV | | | | | | | | | | | | |
| 08... | 250 | 0 | 430 | 330 | .8 | 26 | 1400 | 1360 | 1.90 | | 540 | 70 |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- | | -- | -- |
| 21... | -- | -- | -- | -- | -- | -- | -- | -- | -- | | -- | -- |
| 28... | -- | -- | -- | -- | -- | -- | -- | -- | -- | | -- | -- |
| DEC | | | | | | | | | | | | |
| 05... | 230 | 0 | 430 | 330 | .8 | 25 | 1360 | 1350 | 1.85 | | 510 | 20 |
| JAN | | | | | | | | | | | | |
| 03... | -- | -- | -- | -- | -- | -- | -- | -- | -- | | -- | -- |
| 09... | -- | -- | -- | -- | -- | -- | -- | -- | -- | | -- | -- |
| 16... | -- | -- | -- | -- | -- | -- | -- | -- | -- | | -- | -- |
| 23... | -- | -- | -- | -- | -- | -- | -- | -- | -- | | -- | -- |
| 27... | 250 | 0 | 460 | 310 | .9 | 25 | 1330 | 1410 | 1.81 | | 480 | 0 |
| 30... | -- | -- | -- | -- | -- | -- | -- | -- | -- | | -- | -- |
| FEB | | | | | | | | | | | | |
| 06... | 240 | 0 | 410 | 320 | .8 | 27 | 1340 | 1340 | 1.82 | | 480 | 10 |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- | | -- | -- |
| 21... | -- | -- | -- | -- | -- | -- | -- | -- | -- | | -- | -- |
| 27... | -- | -- | -- | -- | -- | -- | -- | -- | -- | | -- | -- |
| MAR | | | | | | | | | | | | |
| 07... | 250 | 0 | 440 | 300 | .9 | 25 | 1340 | 1350 | 1.82 | | 490 | 0 |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- | | -- | -- |
| 20... | -- | -- | -- | -- | -- | -- | -- | -- | -- | | -- | -- |
| 27... | -- | -- | -- | -- | -- | -- | -- | -- | -- | | -- | -- |
| 28... | -- | -- | -- | -- | -- | -- | -- | -- | -- | | -- | -- |
| APR | | | | | | | | | | | | |
| 03... | 250 | 0 | 420 | 310 | .8 | 24 | 1350 | 1340 | 1.84 | | 480 | 10 |
| 10... | -- | -- | -- | -- | -- | -- | -- | -- | -- | | -- | -- |
| 17... | -- | -- | -- | -- | -- | -- | -- | -- | -- | | -- | -- |
| 24... | -- | -- | -- | -- | -- | -- | -- | -- | -- | | -- | -- |
| MAY | | | | | | | | | | | | |
| 01... | 250 | 0 | 410 | 320 | .8 | 24 | 1340 | 1330 | 1.82 | | 490 | 10 |
| 08... | -- | -- | -- | -- | -- | -- | -- | -- | -- | | -- | -- |
| 15... | -- | -- | -- | -- | -- | -- | -- | -- | -- | | -- | -- |
| 22... | -- | -- | -- | -- | -- | -- | -- | -- | -- | | -- | -- |
| 30... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUN | | | | | | | | | | | | |
| 05... | 240 | 0 | 420 | 330 | .8 | 23 | 1370 | 1370 | 1.86 | -- | 500 | 10 |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 26... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | | | | |
| 05... | -- | -- | 430 | 330 | .7 | 18 | 1360 | 1360 | 1.85 | -- | 490 | 10 |
| 10... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 17... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 24... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 31... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | | | | |
| 07... | 170 | 0 | 380 | 350 | .7 | 25 | 1320 | 1300 | 1.80 | 1.3 | 440 | 20 |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 21... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 28... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| SEP | | | | | | | | | | | | |
| 05... | 250 | 0 | 400 | 330 | .8 | 24 | 1320 | 1350 | 1.80 | 1.1 | 500 | 20 |
| 11... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 18... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 25... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

## 09530500 DRAIN 8-B NEAR YUMA, AZ

LOCATION.--Lat 32°44'39", long 114°41'45", in NE¼NW¼ sec.30, T.16 S., R.22 E., San Bernardino meridian, in California, Imperial County, Hydrologic Unit 15030107, 0.5 mi (0.8 km) upstream from outlet to Colorado River, and 4 mi (6 km) west of Yuma.

PERIOD OF RECORD.--October 1968 to September 1973 (partial-record station), October 1973 to current year.

REMARKS.--Unpublished chemical analyses (partial record) for water years 1962-68 available from district office in Tucson, Ariz.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 25... | 1045 | 1.4 | 1500 | 7.7 | 20.0 | 380 | 200 | 96 | 33 | 190 | 4.3 | 4.1 |
| NOV | | | | | | | | | | | | |
| 28... | 1000 | 1.8 | 1470 | 7.7 | 18.0 | 400 | 230 | 100 | 36 | 170 | 3.7 | 4.2 |
| DEC | | | | | | | | | | | | |
| 27... | 1145 | .86 | 1650 | 8.1 | 18.5 | 440 | 270 | 110 | 40 | 190 | 3.9 | 5.8 |
| JAN | | | | | | | | | | | | |
| 23... | 0930 | .81 | 1550 | 7.7 | 14.5 | 440 | 260 | 110 | 39 | 180 | 3.8 | 4.6 |
| FEB | | | | | | | | | | | | |
| 21... | 1145 | .66 | 1570 | 8.0 | 19.0 | 410 | 230 | 100 | 38 | 180 | 3.9 | 4.6 |
| MAR | | | | | | | | | | | | |
| 20... | 0925 | 1.3 | 1680 | 7.9 | 21.0 | 470 | 290 | 120 | 41 | 200 | 4.0 | 5.4 |
| APR | | | | | | | | | | | | |
| 24... | 0920 | 1.0 | 1570 | 7.8 | 20.0 | 430 | 250 | 110 | 38 | 190 | 4.0 | 4.7 |
| MAY | | | | | | | | | | | | |
| 22... | 1125 | .88 | 1550 | 8.8 | 29.0 | 400 | 270 | 98 | 38 | 200 | 4.3 | 4.9 |
| JUN | | | | | | | | | | | | |
| 19... | 1030 | 1.4 | 1620 | 8.5 | 27.0 | 430 | -- | 110 | 37 | 200 | 4.2 | 5.2 |
| JUL | | | | | | | | | | | | |
| 24... | 1100 | 1.5 | 1580 | 7.9 | 32.0 | 400 | 240 | 100 | 37 | 200 | 4.3 | 5.4 |
| AUG | | | | | | | | | | | | |
| 28... | 0920 | 1.3 | 1530 | 7.8 | 24.5 | 380 | 220 | 98 | 34 | 190 | 4.2 | 4.5 |
| SEP | | | | | | | | | | | | |
| 25... | 1100 | 1.2 | 1550 | 8.0 | 28.0 | 410 | 240 | 110 | 33 | 190 | 4.1 | 4.5 |

09530500 DRAIN 8-B NEAR YUMA, AZ

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | BICARBONATE (MG/L AS HCO3) | CARBONATE (MG/L AS CO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | SOLIDS, DISSOLVED (TONS PER AC-FT) | NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) | BORON, DISSOLVED (UG/L AS B) | IRON, DISSOLVED (UG/L AS FE) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 25... | 210 | 0 | 390 | 150 | .5 | 22 | 987 | 990 | 1.34 | .19 | 180 | 10 |
| NOV | | | | | | | | | | | | |
| 28... | 200 | 0 | 370 | 150 | .4 | 21 | 988 | 951 | 1.34 | .13 | 190 | 20 |
| DEC | | | | | | | | | | | | |
| 27... | 210 | 0 | 420 | 170 | .5 | 23 | 1110 | 1060 | 1.51 | .10 | 220 | 10 |
| JAN | | | | | | | | | | | | |
| 23... | 210 | 0 | 410 | 150 | .4 | 23 | 1040 | 1020 | 1.41 | .14 | 190 | 20 |
| FEB | | | | | | | | | | | | |
| 21... | 220 | 0 | 400 | 150 | .4 | 23 | 1040 | 1010 | 1.41 | .09 | 200 | 20 |
| MAR | | | | | | | | | | | | |
| 20... | 220 | 0 | 450 | 170 | .5 | 22 | 1100 | 1120 | 1.50 | .14 | 230 | 0 |
| APR | | | | | | | | | | | | |
| 24... | 220 | 0 | 410 | 160 | .4 | 22 | 1040 | 1040 | 1.41 | .08 | 200 | 20 |
| MAY | | | | | | | | | | | | |
| 22... | 160 | 3 | 420 | 160 | .4 | 22 | 1010 | 1030 | 1.37 | .06 | 240 | 0 |
| JUN | | | | | | | | | | | | |
| 19... | -- | -- | 410 | 170 | .5 | 24 | 1080 | 1060 | 1.47 | .04 | 260 | 10 |
| JUL | | | | | | | | | | | | |
| 24... | 200 | 0 | 400 | 170 | .5 | 29 | 1040 | 1040 | 1.41 | .11 | 230 | 50 |
| AUG | | | | | | | | | | | | |
| 28... | 200 | 0 | 420 | 140 | .4 | 21 | 1010 | 1010 | 1.37 | .32 | 250 | 20 |
| SEP | | | | | | | | | | | | |
| 25... | 210 | 0 | 420 | 150 | .5 | 22 | 1030 | 1030 | 1.40 | .13 | 200 | 50 |

## 09534000 MAIN DRAIN AT SOUTHERLY INTERNATIONAL BOUNDARY, NEAR SAN LUIS, AZ

LOCATION.--Lat 32°29'17", long 114°47'16", in SE¼NE¼ sec.11, T.11 S., R.25 W., Yuma County, Hydrologic Unit 15030108, at gaging station at pumping plant, 0.1 mi (0.2 km) upstream from international boundary, and 0.4 mi (0.6 km) west of San Luis.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | TUR-BID-ITY (JTU) | TUR-BID-ITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) | COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 04... | 1210 | 140 | 2470 | 7.8 | 25.5 | 40 | -- | 8.1 | 440 | 540 | 310 |
| 18... | 0915 | 134 | 2400 | 7.8 | 24.0 | -- | -- | -- | -- | 550 | 330 |
| NOV | | | | | | | | | | | |
| 08... | 1130 | 82 | 2360 | 7.9 | 19.5 | 20 | -- | 9.2 | 220 | 550 | 330 |
| 22... | 0915 | 138 | 2480 | 7.8 | 15.5 | -- | -- | -- | -- | 570 | 370 |
| DEC | | | | | | | | | | | |
| 06... | 1100 | 81 | 2290 | 7.9 | 18.0 | 15 | -- | -- | 240 | 560 | 380 |
| 20... | 1020 | 81 | 2450 | 7.9 | 14.5 | -- | -- | -- | -- | 560 | 330 |
| JAN | | | | | | | | | | | |
| 10... | 1145 | 78 | 2310 | 7.8 | 16.0 | 30 | -- | -- | 500 | 530 | 340 |
| 24... | 0935 | 85 | 2460 | 7.9 | 14.0 | -- | -- | -- | -- | 560 | 350 |
| FEB | | | | | | | | | | | |
| 07... | 1325 | 80 | 2310 | 7.9 | 19.5 | 30 | -- | 9.3 | 370 | 500 | 300 |
| 21... | 1040 | 136 | 2380 | 8.0 | 18.0 | -- | -- | -- | -- | 520 | 310 |
| MAR | | | | | | | | | | | |
| 07... | 1100 | 78 | 2500 | 7.8 | 20.5 | 35 | -- | 8.0 | 420 | 580 | 360 |
| 24... | 1140 | 130 | 2510 | 7.9 | 18.5 | -- | -- | -- | -- | 600 | 370 |
| APR | | | | | | | | | | | |
| 11... | 1100 | 81 | 2360 | 7.6 | 24.0 | 35 | -- | 6.4 | 460 | 560 | 340 |
| 25... | 1200 | 78 | 2550 | 7.8 | 25.5 | -- | -- | -- | -- | 560 | 320 |
| MAY | | | | | | | | | | | |
| 09... | 1320 | 81 | 2490 | 7.8 | 26.5 | 30 | -- | 9.0 | 300 | 650 | 420 |
| 23... | 1000 | 78 | 2430 | 7.8 | 24.0 | -- | -- | -- | -- | 560 | 340 |
| JUN | | | | | | | | | | | |
| 13... | 1045 | 139 | 2550 | 7.7 | 28.0 | 35 | -- | 7.0 | K3000 | 600 | 360 |
| 27... | 1155 | 78 | 2420 | 7.7 | 26.5 | -- | -- | -- | -- | 590 | 380 |
| JUL | | | | | | | | | | | |
| 11... | 1125 | 78 | 2470 | 7.8 | 29.0 | -- | 42 | 6.9 | 1000 | 590 | 360 |
| 25... | 1020 | 78 | 2490 | 7.8 | 29.0 | -- | -- | -- | -- | 620 | 400 |
| AUG | | | | | | | | | | | |
| 08... | 1130 | 81 | 2510 | 7.9 | 30.0 | 60 | -- | 6.8 | K14000 | 630 | 390 |
| 22... | 1020 | 78 | 2470 | 7.8 | 28.5 | -- | -- | -- | -- | 580 | 360 |
| SEP | | | | | | | | | | | |
| 12... | 1210 | 136 | 2330 | 8.0 | 26.5 | 15 | -- | 8.4 | 520 | 540 | 340 |
| 26... | 1005 | 81 | 2270 | 7.8 | 26.0 | -- | -- | -- | -- | 510 | 300 |

K Based on non-ideal colony count.

09534000 MAIN DRAIN AT SOUTHERLY INTERNATIONAL BOUNDARY, NEAR SAN LUIS, AZ--Continued

PERIOD OF RECORD.--October 1968 to current year.

REMARKS.--Unpublished chemical analyses (continuing record) from October 1961 to September 1968 available from district office in Tucson, Ariz.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | CALCIUM DIS- SOLVED (MG/L AS CA) | MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) | SODIUM, DIS- SOLVED (MG/L AS NA) | SODIUM AD- SORP- TION RATIO | POTAS- SIUM, DIS- SOLVED (MG/L AS K) | BICAR- BONATE (MG/L AS HCO3) | CAR- BONATE (MG/L AS CO3) | SULFATE DIS- SOLVED (MG/L AS SO4) | CHLO- RIDE, DIS- SOLVED (MG/L AS CL) | FLUO- RIDE, DIS- SOLVED (MG/L AS F) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | |
| 04... | 140 | 46 | 320 | 6.0 | 5.6 | 280 | 0 | 490 | 380 | .9 |
| 18... | 140 | 49 | 320 | 5.9 | 5.8 | 270 | 0 | 480 | 370 | .6 |
| NOV | | | | | | | | | | |
| 08... | 140 | 49 | 320 | 5.9 | 5.6 | 270 | 0 | 490 | 350 | .6 |
| 22... | 150 | 48 | 330 | 6.0 | 5.9 | 250 | 0 | 490 | 390 | .6 |
| DEC | | | | | | | | | | |
| 06... | 140 | 50 | 300 | 5.5 | 5.3 | 220 | 0 | 480 | 350 | .6 |
| 20... | 140 | 50 | 330 | 6.1 | 6.9 | 270 | 0 | 490 | 390 | .6 |
| JAN | | | | | | | | | | |
| 10... | 130 | 50 | 320 | 6.0 | 6.9 | 230 | 0 | 460 | 370 | .4 |
| 24... | 140 | 50 | 330 | 6.1 | 6.1 | 250 | 0 | 490 | 410 | .6 |
| FEB | | | | | | | | | | |
| 07... | 120 | 49 | 310 | 6.0 | 6.1 | 250 | 0 | 440 | 370 | .6 |
| 21... | 130 | 48 | 310 | 5.9 | 6.1 | 260 | 0 | 470 | 380 | .7 |
| MAR | | | | | | | | | | |
| 07... | 140 | 50 | 330 | 6.1 | 6.9 | 270 | 0 | 460 | 420 | .6 |
| 24... | 150 | 54 | 330 | 5.9 | 6.9 | 280 | 0 | 490 | 390 | .5 |
| APR | | | | | | | | | | |
| 11... | 140 | 51 | 320 | 5.9 | 6.7 | 270 | 0 | 460 | 370 | .5 |
| 25... | 140 | 51 | 340 | 6.3 | 6.5 | 290 | 0 | 510 | 400 | .6 |
| MAY | | | | | | | | | | |
| 09... | 170 | 54 | 320 | 5.5 | 7.5 | 280 | 0 | 490 | 400 | .5 |
| 23... | 140 | 52 | 350 | 6.4 | 6.3 | 270 | 0 | 480 | 380 | .6 |
| JUN | | | | | | | | | | |
| 13... | 150 | 55 | 330 | 5.9 | 6.4 | 290 | 0 | 460 | 390 | .6 |
| 27... | 150 | 52 | 320 | 5.7 | 6.9 | 280 | -- | 480 | 380 | .6 |
| JUL | | | | | | | | | | |
| 11... | 150 | 53 | 320 | 5.7 | 6.4 | 290 | 0 | 490 | 390 | .6 |
| 25... | 150 | 59 | 310 | 5.4 | 6.2 | 270 | 0 | 510 | 380 | .6 |
| AUG | | | | | | | | | | |
| 08... | 160 | 55 | 320 | 5.6 | 6.5 | 290 | 0 | 480 | 400 | .6 |
| 22... | 150 | 50 | 340 | 6.1 | 6.3 | 270 | 0 | 470 | 390 | .6 |
| SEP | | | | | | | | | | |
| 12... | 140 | 47 | 280 | 5.2 | 6.0 | 250 | 0 | 460 | 370 | .5 |
| 26... | 130 | 45 | 300 | 5.8 | 5.1 | 260 | 0 | 480 | 340 | .6 |

09534000 MAIN DRAIN AT SOUTHERLY INTERNATIONAL BOUNDARY, NEAR SAN LUIS, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER AC-FT) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) | NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO-GEN, TOTAL (MG/L AS N) | PHOS-PHORUS, TOTAL (MG/L AS P) | PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | |
| 04... | 24 | 1620 | 1550 | 2.20 | .44 | -- | .30 | .74 | .12 | -- |
| 18... | 22 | 1560 | 1520 | 2.12 | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | | | | | |
| 08... | 21 | 1540 | 1510 | 2.09 | .34 | -- | .18 | .52 | .05 | -- |
| 22... | 23 | 1610 | 1560 | 2.19 | -- | -- | -- | -- | -- | -- |
| DEC | | | | | | | | | | |
| 06... | 20 | 1500 | 1450 | 2.04 | -- | -- | -- | -- | -- | -- |
| 20... | 24 | 1590 | 1570 | 2.16 | -- | -- | -- | -- | -- | -- |
| JAN | | | | | | | | | | |
| 10... | 19 | 1510 | 1470 | 2.05 | -- | .48 | -- | 1.2 | -- | .02 |
| 24... | 23 | 1580 | 1570 | 2.15 | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | | | | | |
| 07... | 20 | 1500 | 1440 | 2.04 | .29 | .37 | .40 | .69 | .08 | .01 |
| 21... | 22 | 1560 | 1500 | 2.12 | -- | -- | -- | -- | -- | -- |
| MAR | | | | | | | | | | |
| 07... | 21 | 1590 | 1560 | 2.16 | .39 | .45 | .44 | .83 | .10 | .09 |
| 24... | 21 | 1570 | 1580 | 2.14 | -- | -- | -- | -- | -- | -- |
| APR | | | | | | | | | | |
| 11... | 20 | 1510 | 1500 | 2.05 | .35 | .41 | .76 | 1.1 | .09 | .03 |
| 25... | 22 | 1650 | 1610 | 2.24 | -- | -- | -- | -- | -- | -- |
| MAY | | | | | | | | | | |
| 09... | 22 | 1600 | 1600 | 2.18 | .40 | .47 | .66 | 1.1 | .09 | .00 |
| 23... | 20 | 1520 | 1560 | 2.07 | -- | -- | -- | -- | -- | -- |
| JUN | | | | | | | | | | |
| 13... | 21 | 1680 | 1560 | 2.28 | .47 | -- | .68 | 1.2 | .09 | -- |
| 27... | 22 | 1550 | 1550 | 2.11 | -- | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | | |
| 11... | 23 | 1640 | 1580 | 2.23 | .84 | .78 | .89 | 1.7 | .12 | .03 |
| 25... | 23 | 1590 | 1570 | 2.16 | -- | .62 | -- | -- | -- | -- |
| AUG | | | | | | | | | | |
| 08... | 24 | 1560 | 1590 | 2.12 | .02 | .58 | .69 | .71 | .13 | -- |
| 22... | 22 | 1590 | 1560 | 2.16 | -- | .55 | -- | -- | -- | -- |
| SEP | | | | | | | | | | |
| 12... | 21 | 1550 | 1450 | 2.11 | .47 | .50 | 1.7 | 2.2 | .05 | .01 |
| 26... | 20 | 1510 | 1450 | 2.05 | -- | .18 | -- | -- | -- | -- |

| DATE | IRON, DIS-SOLVED (UG/L AS FE) | LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) | MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) | MANGA-NESE, DIS-SOLVED (UG/L AS MN) | MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) | SELE-NIUM, TOTAL (UG/L AS SE) | ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) | ARSENIC TOTAL (UG/L AS AS) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 04... | 10 | <100 | 300 | 20 | .0 | 0 | 40 | 4 |
| 18... | 30 | -- | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | | | |
| 08... | 10 | <100 | 100 | 20 | .0 | 1 | 20 | 3 |
| 22... | 0 | -- | -- | -- | -- | -- | -- | -- |
| DEC | | | | | | | | |
| 06... | 30 | -- | -- | 10 | -- | -- | -- | -- |
| 20... | 20 | -- | -- | -- | -- | -- | -- | -- |
| JAN | | | | | | | | |
| 10... | 10 | -- | -- | 20 | -- | -- | -- | -- |
| 24... | 10 | -- | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | | | |
| 07... | 0 | 7 | 160 | 20 | .1 | 2 | 20 | 2 |
| 21... | 0 | -- | -- | -- | -- | -- | -- | -- |
| MAR | | | | | | | | |
| 07... | 0 | 40 | 170 | 20 | .0 | 1 | 40 | 3 |
| 24... | 10 | -- | -- | -- | -- | -- | -- | -- |
| APR | | | | | | | | |
| 11... | 50 | 5 | 100 | 40 | .0 | 1 | 10 | 3 |
| 25... | 30 | -- | -- | -- | -- | -- | -- | -- |
| MAY | | | | | | | | |
| 09... | 10 | 10 | 220 | 40 | .0 | 0 | 20 | 2 |
| 23... | 0 | -- | -- | -- | -- | -- | -- | -- |
| JUN | | | | | | | | |
| 13... | 10 | 53 | 180 | 10 | .1 | 1 | 50 | 6 |
| 27... | 80 | -- | -- | -- | -- | -- | -- | -- |
| JUL | | | | | | | | |
| 11... | 40 | 5 | 320 | 10 | .1 | 1 | 20 | 3 |
| 25... | 20 | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | |
| 08... | 40 | 7 | 490 | 20 | .0 | 1 | 30 | 4 |
| 22... | 10 | -- | -- | -- | -- | -- | -- | -- |
| SEP | | | | | | | | |
| 12... | 60 | 0 | 140 | 20 | .0 | 1 | 20 | 2 |
| 26... | 20 | -- | -- | -- | -- | -- | -- | -- |

< Actual value is known to be less than value shown.

09534000 MAIN DRAIN AT SOUTHERLY INTERNATIONAL BOUNDARY, NEAR SAN LUIS, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | BORON, TOTAL RECOV-ERABLE (UG/L AS B) | BORON, DIS-SOLVED (UG/L AS B) | CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) | IRON, TOTAL RECOV-ERABLE (UG/L AS FE) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS (UG/L) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 04... | 430 | 380 | <10 | 10 | 10 | 2400 | .00 | 2 |
| 18... | -- | 380 | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | | | |
| 08... | 390 | 380 | 10 | 8 | <10 | 610 | .00 | 1 |
| 22... | -- | 400 | -- | -- | -- | -- | -- | -- |
| DEC | | | | | | | | |
| 06... | -- | 380 | -- | -- | -- | -- | -- | -- |
| 20... | -- | 420 | -- | -- | -- | -- | -- | -- |
| JAN | | | | | | | | |
| 10... | -- | 390 | -- | -- | -- | -- | -- | -- |
| 24... | -- | 430 | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | | | |
| 07... | 400 | 390 | 3 | 0 | 26 | 940 | .00 | 1 |
| 21... | -- | 390 | -- | -- | -- | -- | -- | -- |
| MAR | | | | | | | | |
| 07... | 500 | 410 | 2 | 10 | 8 | 1500 | .00 | 1 |
| 24... | -- | 410 | -- | -- | -- | -- | -- | -- |
| APR | | | | | | | | |
| 11... | 420 | 400 | 0 | 10 | 6 | 1100 | .00 | 3 |
| 25... | -- | 410 | -- | -- | -- | -- | -- | -- |
| MAY | | | | | | | | |
| 09... | 470 | 430 | 2 | 10 | 3 | 1300 | .00 | 2 |
| 23... | -- | 390 | -- | -- | -- | -- | -- | -- |
| JUN | | | | | | | | |
| 13... | 460 | 400 | 5 | 0 | 7 | 1000 | .00 | 1 |
| 27... | -- | 510 | -- | -- | -- | -- | -- | -- |
| JUL | | | | | | | | |
| 11... | 190 | 380 | 1 | 10 | 7 | 1900 | .00 | 0 |
| 25... | -- | 210 | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | |
| 08... | 440 | 410 | 0 | 0 | 9 | 2600 | .00 | 1 |
| 22... | -- | 420 | -- | -- | -- | -- | -- | -- |
| SEP | | | | | | | | |
| 12... | 420 | 390 | 0 | 10 | 5 | 750 | .00 | 0 |
| 26... | -- | 360 | -- | -- | -- | -- | -- | -- |

| DATE | TIME | PCB, TOTAL (UG/L) | ALDRIN, TOTAL (UG/L) | CHLOR-DANE, TOTAL (UG/L) | DDD, TOTAL (UG/L) | DDE, TOTAL (UG/L) | DDT, TOTAL (UG/L) | DI-AZINON, TOTAL (UG/L) | DI-ELDRIN TOTAL (UG/L) | ENDRIN, TOTAL (UG/L) | ETHION, TOTAL (UG/L) | HEPTA-CHLOR, TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FEB | | | | | | | | | | | | |
| 07... | 1325 | .0 | .00 | .0 | .00 | .01 | .00 | .00 | .00 | .00 | .00 | .00 |
| MAY | | | | | | | | | | | | |
| 09... | 1320 | .0 | .00 | .0 | .00 | .01 | .01 | .00 | .00 | .00 | .00 | .00 |
| AUG | | | | | | | | | | | | |
| 08... | 1130 | .0 | .00 | .0 | .00 | .01 | .01 | .00 | .00 | .00 | .00 | .00 |

| DATE | HEPTA-CHLOR EPOXIDE TOTAL (UG/L) | LINDANE TOTAL (UG/L) | MALA-THION, TOTAL (UG/L) | METHYL PARA-THION, TOTAL (UG/L) | METHYL TRI-THION, TOTAL (UG/L) | PARA-THION, TOTAL (UG/L) | TOX-APHENE, TOTAL (UG/L) | TOTAL TRI-THION (UG/L) | 2,4-D, TOTAL (UG/L) | 2,4,5-T TOTAL (UG/L) | SILVEX, TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| FEB | | | | | | | | | | | |
| 07... | .00 | .00 | .00 | .00 | .00 | .00 | 0 | .00 | .02 | .00 | .00 |
| MAY | | | | | | | | | | | |
| 09... | .00 | .00 | .00 | .00 | .00 | .00 | 0 | .00 | .00 | .00 | .00 |
| AUG | | | | | | | | | | | |
| 08... | .00 | .00 | .00 | .00 | .00 | .00 | 0 | .00 | .00 | .00 | .00 |

< Actual value is known to be less than value shown.

## 09534300 WEST MAIN CANAL WASTEWAY AT ARIZONA-SONORA BOUNDARY

LOCATION.--Lat 32°29'29", long 114°47'39", in SE¼NE¼ sec.11, T.11 S., R.25 W., Yuma County, Hydrologic Unit 15030108, at gaging station, 150 ft (50 m) upstream from outlet into Main drain, 300 ft (100 m) north of international boundary, 0.2 mi (0.3 km) west of San Luis, Ariz., and 19 mi (30 km) south of Yuma.

PERIOD OF RECORD.--March 1971 to current year.

REMARKS.--No flow Oct. 27; Mar. 22, 27; Apr. 6, 9-11, 15, 18; May 1, 16; Jun. 30; Jul. 19, 20, 30.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 05... | 1130 | 2.1 | 1300 | 8.5 | 34.0 | 340 | 210 | 82 | 34 | 140 | 3.3 | 5.1 |
| 21... | 0930 | 7.7 | 1420 | 7.9 | 22.0 | 370 | 230 | 90 | 36 | 160 | 3.6 | 5.2 |
| NOV | | | | | | | | | | | | |
| 08... | 0925 | 2.8 | 1280 | 8.1 | 14.0 | 350 | 210 | 84 | 33 | 150 | 3.0 | 4.9 |
| 22... | 0900 | 2.7 | 1390 | 8.1 | 11.0 | 370 | 230 | 89 | 36 | 150 | 3.4 | 5.3 |
| DEC | | | | | | | | | | | | |
| 06... | 0940 | 3.5 | 1450 | 8.1 | 13.0 | 390 | 250 | 94 | 38 | 160 | 3.5 | 5.0 |
| 20... | 1150 | 5.2 | 1310 | 8.0 | 11.0 | 370 | 230 | 92 | 35 | 140 | 3.2 | 5.7 |
| JAN | | | | | | | | | | | | |
| 12... | 1315 | 4.5 | 1590 | 8.1 | 16.0 | 420 | 270 | 100 | 41 | 190 | 4.0 | 5.7 |
| 24... | 0920 | 1.1 | 1520 | 8.0 | 7.0 | 400 | 270 | 97 | 38 | 180 | 3.9 | 5.6 |
| FEB | | | | | | | | | | | | |
| 10... | 1020 | 21 | 1420 | 8.1 | 16.0 | 390 | 240 | 96 | 37 | 160 | 3.5 | 5.3 |
| 21... | 0950 | 15 | 1190 | 8.1 | 14.0 | 350 | 200 | 81 | 32 | 120 | 2.9 | 4.7 |
| MAR | | | | | | | | | | | | |
| 07... | 0940 | 1.6 | 1160 | 8.3 | 15.5 | 320 | 220 | 74 | 32 | 130 | 3.2 | 5.0 |
| 24... | 0950 | .00 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| APR | | | | | | | | | | | | |
| 14... | 0920 | 2.9 | 1210 | 8.2 | 19.5 | 370 | 220 | 92 | 33 | 120 | 2.7 | 5.3 |
| 25... | 1030 | 1.8 | 1190 | 8.2 | 24.0 | 340 | 210 | 83 | 33 | 120 | 2.8 | 5.0 |
| MAY | | | | | | | | | | | | |
| 12... | 1015 | .50 | 1240 | 8.0 | 25.0 | 360 | 230 | 90 | 34 | 130 | 3.0 | 5.3 |
| 23... | 0950 | 9.7 | 1200 | 8.1 | 24.5 | 340 | 220 | 81 | 33 | 130 | 3.1 | 5.3 |
| JUN | | | | | | | | | | | | |
| 13... | 1000 | 1.0 | 1270 | 8.2 | 29.0 | 360 | 240 | 97 | 34 | 140 | 3.1 | 5.7 |
| 27... | 1000 | .20 | 1240 | 8.0 | 28.0 | 350 | 240 | 85 | 33 | 140 | 3.3 | 5.4 |
| JUL | | | | | | | | | | | | |
| 14... | 1110 | 2.7 | 1270 | 8.1 | 31.5 | 360 | 230 | 90 | 34 | 130 | 3.0 | 5.2 |
| 25... | 1015 | 1.0 | 1230 | 8.2 | 31.0 | 370 | 250 | 89 | 36 | 120 | 2.7 | 5.2 |
| AUG | | | | | | | | | | | | |
| 08... | 0930 | 5.9 | 1210 | 8.2 | 30.0 | 340 | 200 | 82 | 34 | 130 | 3.0 | 5.3 |
| 22... | 1015 | 4.3 | 1230 | 8.1 | 29.0 | 320 | 220 | 77 | 32 | 140 | 3.4 | 5.5 |
| SEP | | | | | | | | | | | | |
| 12... | 0935 | 7.1 | 1270 | 8.2 | 26.0 | 370 | 230 | 92 | 33 | 130 | 3.0 | 5.2 |
| 26... | 0955 | 1.7 | 1310 | 8.0 | 26.0 | 360 | 230 | 90 | 34 | 150 | 3.4 | 4.6 |

09534300 WEST MAIN CANAL WASTEWAY AT ARIZONA-SONORA BOUNDARY--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | BICAR-BONATE (MG/L AS HCO3) | CAR-BONATE (MG/L AS CO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER AC-FT) | NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) | BORON, DIS-SOLVED (UG/L AS B) | IRON, DIS-SOLVED (UG/L AS FE) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 05... | 160 | 0 | 350 | 130 | .4 | 10 | 830 | 831 | 1.13 | -- | 180 | 0 |
| 21... | 170 | 0 | 370 | 150 | .5 | 11 | 912 | 907 | 1.24 | -- | 200 | 20 |
| NOV | | | | | | | | | | | | |
| 08... | 160 | 0 | 340 | 120 | .4 | 8.8 | 822 | 800 | 1.12 | -- | 180 | 10 |
| 22... | 170 | 0 | 360 | 140 | .5 | 9.4 | 892 | 874 | 1.21 | -- | 200 | 10 |
| DEC | | | | | | | | | | | | |
| 06... | 170 | 0 | 370 | 160 | .5 | 9.6 | 934 | 921 | 1.27 | -- | 220 | 0 |
| 20... | 170 | 0 | 340 | 130 | .5 | 9.0 | 836 | 836 | 1.14 | -- | 200 | 10 |
| JAN | | | | | | | | | | | | |
| 12... | 180 | 0 | 390 | 190 | .6 | 9.9 | 1030 | 1020 | 1.40 | -- | 250 | 40 |
| 24... | 160 | 0 | 410 | 170 | .6 | 7.4 | 972 | 988 | 1.32 | -- | 240 | 10 |
| FEB | | | | | | | | | | | | |
| 10... | 190 | 0 | 350 | 150 | .6 | 11 | 930 | 904 | 1.26 | -- | 210 | 10 |
| 21... | 160 | 0 | 310 | 110 | .5 | 8.4 | 760 | 746 | 1.03 | -- | 170 | 10 |
| MAR | | | | | | | | | | | | |
| 07... | 120 | 0 | 310 | 120 | .4 | 2.9 | 738 | 734 | 1.00 | -- | 170 | 0 |
| 24... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| APR | | | | | | | | | | | | |
| 14... | 180 | 0 | 300 | 110 | .4 | 9.2 | 782 | 759 | 1.06 | -- | 170 | 40 |
| 25... | 160 | 0 | 330 | 110 | .4 | 8.7 | 762 | 769 | 1.04 | -- | 170 | 10 |
| MAY | | | | | | | | | | | | |
| 12... | 160 | 0 | 320 | 120 | .4 | 8.6 | 798 | 787 | 1.09 | -- | 170 | 10 |
| 23... | 140 | 0 | 320 | 110 | .4 | 8.7 | 770 | 758 | 1.05 | -- | 170 | 40 |
| JUN | | | | | | | | | | | | |
| 13... | 170 | 0 | 340 | 120 | .4 | 9.8 | 808 | 831 | 1.10 | -- | 160 | 0 |
| 27... | 150 | 0 | 350 | 130 | .4 | 9.8 | 782 | 828 | 1.08 | -- | 190 | -- |
| JUL | | | | | | | | | | | | |
| 14... | -- | -- | 320 | 130 | .5 | 11 | 806 | 799 | 1.10 | -- | 190 | 70 |
| 25... | 150 | 0 | 320 | 120 | .4 | 10 | 780 | 775 | 1.06 | .02 | 210 | 20 |
| AUG | | | | | | | | | | | | |
| 08... | -- | -- | 310 | 120 | .4 | 10 | 792 | 776 | 1.08 | -- | 170 | 20 |
| 22... | 130 | 0 | 330 | 130 | .4 | 10 | 796 | 769 | 1.08 | .00 | 180 | 20 |
| SEP | | | | | | | | | | | | |
| 12... | 160 | 0 | 330 | 130 | .4 | 10 | 818 | 810 | 1.11 | .01 | 200 | 20 |
| 26... | 160 | 0 | 360 | 130 | .5 | 10 | 866 | 860 | 1.16 | .35 | 160 | 50 |

## 09534500 EAST MAIN CANAL WASTEWAY AT ARIZONA-SONORA BOUNDARY

LOCATION.--Lat 32°29'13", long 114°47'01", in NW¼SW¼, sec.12, T.11 S., R.25 W., Yuma County, Hydrologic Unit 15030108, at gaging station, 0.2 mi (0.3 km) east of Main drain pumping plant, and 0.2 mi (0.3 km) west of San Luis.

PERIOD OF RECORD.--October 1968 to current year.

REMARKS.--No flow for many days during year. Unpublished miscellaneous chemical analyses for water years 1962-65, and continuing-record analyses for water years 1966-68 available from district office in Tucson, Ariz.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 04... | 1000 | 5.8 | 1510 | 8.6 | 24.5 | 360 | 250 | 85 | 35 | 180 | 4.2 | 4.9 |
| 18... | 0930 | 2.4 | 1700 | 7.7 | 21.5 | 360 | 290 | 77 | 41 | 210 | 4.8 | 4.9 |
| NOV | | | | | | | | | | | | |
| 08... | 0935 | 1.9 | 1470 | 8.1 | 14.0 | 360 | 260 | 81 | 38 | 170 | 3.9 | 4.7 |
| 22... | 0925 | 1.3 | 1570 | 8.1 | 9.5 | 360 | 260 | 88 | 39 | 190 | 4.2 | 5.4 |
| DEC | | | | | | | | | | | | |
| 06... | 1000 | 4.1 | 1640 | 8.0 | 13.0 | 210 | 280 | 100 | 41 | 210 | 4.5 | 5.2 |
| 20... | 1005 | 3.9 | 1500 | 8.0 | 9.5 | 400 | 280 | 97 | 39 | 170 | 3.7 | 5.9 |
| JAN | | | | | | | | | | | | |
| 10... | 1005 | 7.4 | 1860 | 7.6 | 11.5 | 440 | 340 | 100 | 46 | 230 | 4.8 | 6.6 |
| FEB | | | | | | | | | | | | |
| 10... | 1030 | 2.9 | 1650 | 8.3 | 16.5 | 400 | 260 | 95 | 40 | 210 | 4.6 | 5.6 |
| 21... | 1100 | 2.7 | 1190 | 8.1 | 14.5 | 310 | 210 | 73 | 32 | 130 | 3.2 | 4.8 |
| MAR | | | | | | | | | | | | |
| 07... | 0950 | .00 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 24... | 1005 | 8.4 | 1730 | 7.8 | 18.0 | 360 | 200 | 86 | 35 | 250 | 5.7 | 6.3 |
| APR | | | | | | | | | | | | |
| 11... | 1100 | 4.0 | 1520 | 8.3 | 21.0 | 360 | 260 | 84 | 37 | 150 | 3.4 | 6.0 |
| 25... | 1050 | 2.4 | 1430 | 7.9 | 24.5 | 390 | 250 | 100 | 35 | 150 | 3.3 | 6.2 |
| MAY | | | | | | | | | | | | |
| 12... | 1030 | 3.5 | 1410 | 8.0 | 25.5 | 380 | 240 | 92 | 37 | 160 | 3.6 | 5.4 |
| 23... | 1020 | 3.8 | 1440 | 8.2 | 24.0 | 350 | 210 | 78 | 36 | 190 | 4.4 | 5.7 |
| JUN | | | | | | | | | | | | |
| 13... | 1015 | 3.6 | 1410 | 8.1 | 30.0 | 380 | 260 | 91 | 37 | 160 | 3.6 | 6.1 |
| 27... | 1020 | 3.5 | -- | 7.9 | 25.0 | 350 | 210 | 82 | 36 | 160 | 3.7 | 5.6 |
| JUL | | | | | | | | | | | | |
| 13... | 0935 | 6.8 | 1280 | 8.0 | 28.5 | 370 | 250 | 87 | 36 | 130 | 3.0 | 5.3 |
| 25... | 1030 | 1.3 | 1300 | 8.1 | 32.0 | 370 | 260 | 88 | 37 | 140 | 3.2 | 5.3 |
| AUG | | | | | | | | | | | | |
| 08... | 0950 | 7.7 | 1360 | 8.0 | 29.5 | 380 | 260 | 92 | 37 | 150 | 3.3 | 5.5 |
| 22... | 1025 | 2.5 | 1670 | 8.2 | 28.5 | 410 | 330 | 96 | 42 | 190 | 4.1 | 5.0 |
| SEP | | | | | | | | | | | | |
| 12... | 1000 | 1.0 | 1420 | 7.9 | 26.0 | 360 | 250 | 85 | 36 | 150 | 3.4 | 5.5 |
| 29... | 0955 | 9.9 | 1400 | 7.9 | 27.0 | 360 | 240 | 88 | 34 | 160 | 3.7 | 4.7 |

09534500 EAST MAIN CANAL WASTEWAY AT ARIZONA-SONORA BOUNDARY--Continue

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | BICARBONATE (MG/L AS HCO3) | CARBONATE (MG/L AS CO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | SOLIDS, DISSOLVED (TONS PER AC-FT) | NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) | BORON, DISSOLVED (UG/L AS B) | IRON, DISSOLVED (UG/L AS FE) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 04... | 120 | 6 | 370 | 190 | 1.1 | 12 | 960 | 943 | 1.31 | -- | 220 | 10 |
| 18... | 91 | 0 | 430 | 240 | .6 | 9.3 | 1080 | 1060 | 1.47 | -- | 270 | 10 |
| NOV | | | | | | | | | | | | |
| 08... | 120 | 0 | 360 | 180 | .4 | 6.3 | 936 | 900 | 1.22 | -- | 210 | 10 |
| 22... | 150 | 0 | 390 | 190 | .5 | 5.7 | 996 | 983 | 1.35 | -- | 240 | 20 |
| DEC | | | | | | | | | | | | |
| 06... | 170 | 0 | 380 | 210 | .3 | 8.0 | 1070 | 1040 | 1.46 | -- | 260 | 20 |
| 20... | 150 | 0 | 350 | 190 | .5 | 4.7 | 952 | 931 | 1.29 | -- | 220 | 20 |
| JAN | | | | | | | | | | | | |
| 10... | 120 | 0 | 400 | 300 | .5 | 1.2 | 1150 | 1140 | 1.56 | -- | 290 | 10 |
| FEB | | | | | | | | | | | | |
| 10... | 170 | 0 | 380 | 210 | .6 | 8.9 | 1050 | 1030 | 1.43 | -- | 250 | 20 |
| 21... | 130 | 0 | 320 | 120 | .6 | 4.9 | 760 | 750 | 1.03 | -- | 170 | 10 |
| MAR | | | | | | | | | | | | |
| 07... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 24... | 190 | 0 | 470 | 170 | .9 | 12 | 1110 | 1120 | 1.51 | -- | 390 | 10 |
| APR | | | | | | | | | | | | |
| 11... | 130 | 0 | 350 | 150 | .4 | 4.5 | 844 | 846 | 1.15 | -- | 190 | 20 |
| 25... | 170 | 0 | 370 | 160 | .5 | 7.9 | 912 | 914 | 1.24 | -- | 200 | 10 |
| MAY | | | | | | | | | | | | |
| 12... | 170 | 0 | 360 | 150 | .5 | 9.0 | 910 | 898 | 1.24 | -- | 210 | 0 |
| 23... | 170 | 0 | 360 | 170 | .5 | 7.1 | 922 | 933 | 1.25 | -- | 240 | 20 |
| JUN | | | | | | | | | | | | |
| 13... | 150 | 0 | 360 | 160 | .4 | 11 | 904 | 900 | 1.23 | -- | 220 | 0 |
| 27... | 170 | 0 | 360 | 160 | .5 | 12 | 868 | 900 | 1.18 | -- | 220 | 20 |
| JUL | | | | | | | | | | | | |
| 13... | -- | -- | 330 | 130 | 1.4 | 11 | 828 | 803 | 1.13 | -- | 180 | 40 |
| 25... | 140 | 0 | 340 | 140 | .5 | 11 | 822 | 831 | 1.12 | .02 | 170 | 20 |
| AUG | | | | | | | | | | | | |
| 08... | -- | -- | 340 | 150 | .5 | 11 | 880 | 858 | 1.20 | -- | 190 | 20 |
| 22... | 100 | 0 | 380 | 250 | .4 | 9.6 | 1060 | 1020 | 1.44 | .01 | 240 | 20 |
| SEP | | | | | | | | | | | | |
| 12... | 130 | 0 | 360 | 170 | .4 | 11 | 900 | 862 | 1.22 | .01 | 210 | 50 |
| 29... | 150 | 0 | 370 | 150 | .5 | 10 | 926 | 892 | 1.26 | .02 | 210 | 60 |

## SAN SIMON WASH BASIN

### 09535100 SAN SIMON WASH NEAR PISINIMO, AZ

LOCATION.--Lat 32°02'42", long 112°22'12", in SE¼ sec.9, T.16 S., R.1 W. (unsurveyed), Pima County, Hydrologic Unit 15080101, in Papago Indian Reservation, in center of channel between two culverts at upstream side of road, just upstream from Gu Vo Wash, and 3.2 mi (5.1 km) west of Pisinimo.

DRAINAGE AREA.--About 600 $mi^2$ (about 1,600 $km^2$).

PERIOD OF RECORD.--February 1972 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,830 ft (558 m), from topographic map. Auxiliary crest-stage gage 40 ft (12 m) downstream at datum 2.97 ft (0.905 m) lower, to measure head through culverts.

REMARKS.--Records good except those for period of no gage-height record, which are poor.

AVERAGE DISCHARGE.--6 years, 4.65 $ft^3/s$ (0.132 $m^3/s$) 3,370 acre-ft/yr (4.16 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,500 $ft^3/s$ (354 $m^3/s$) Sept. 24, 1976, gage height, 10.82 ft (3.298 m), from rating curve extended above 1,700 $ft^3/s$ (48 $m^3/s$) on basis of slope-area measurement of peak flow; no flow for most of each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 473 $ft^3/s$ (13.4 $m^3/s$) Sept. 7, gage height, 7.12 ft (2.170 m), no peak above base of 500 $ft^3/s$ (14 $m^3/s$); no flow for most of year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .00 | .00 | .00 | .00 | .00 | 30 | .00 | .00 | .00 | .00 | .00 | .00 |
| 2 | .00 | .00 | .00 | .00 | .00 | 1.0 | .00 | .00 | .00 | .00 | .30 | .00 |
| 3 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 4 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 5 | .00 | .00 | .00 | .00 | .00 | 1.7 | .00 | .00 | .00 | .00 | .00 | .00 |
| 6 | 3.8 | .00 | .00 | .00 | .00 | 25 | .00 | .00 | .00 | .00 | .00 | .00 |
| 7 | 1.6 | .00 | .00 | .00 | .00 | 27 | .00 | .00 | .00 | .00 | .00 | 73 |
| 8 | .00 | .00 | .00 | .00 | .00 | .90 | .00 | .00 | .00 | .00 | .00 | 32 |
| 9 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 10 | .00 | .00 | .00 | 9.2 | 1.2 | 4.3 | .00 | .00 | .00 | .00 | .00 | .00 |
| 11 | .00 | .00 | .00 | 153 | .79 | .00 | .00 | .00 | .00 | 70 | .00 | .00 |
| 12 | .00 | .00 | .00 | .79 | .09 | 110 | .00 | .00 | .00 | 60 | .00 | .00 |
| 13 | .00 | .00 | .00 | .00 | 19 | 44 | .00 | .00 | .00 | 2.0 | .00 | .00 |
| 14 | .00 | .00 | .00 | .00 | 139 | 1.3 | .00 | .00 | .00 | .00 | .00 | .00 |
| 15 | .00 | .00 | .00 | 10 | 21 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 16 | .00 | .00 | .00 | 23 | 2.9 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 17 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 18 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 19 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 20 | .00 | .00 | .00 | .19 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 21 | .00 | .00 | .00 | .01 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 22 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 23 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 24 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 25 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 1.0 | .00 | .00 |
| 26 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 200 | .00 | .00 |
| 27 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 10 | .00 | .00 |
| 28 | .00 | .00 | 14 | .00 | .00 | .00 | .00 | .00 | .00 | .30 | .00 | .00 |
| 29 | .00 | .00 | 3.2 | .00 | --- | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 30 | .00 | .00 | .10 | .00 | --- | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 31 | .00 | --- | .00 | .00 | --- | .00 | --- | .00 | --- | .00 | .00 | --- |
| TOTAL | 5.40 | .00 | 17.30 | 196.19 | 183.98 | 245.20 | .00 | .00 | .00 | 343.30 | .30 | 105.00 |
| MEAN | .17 | .000 | .56 | 6.33 | 6.57 | 7.91 | .000 | .000 | .000 | 11.1 | .010 | 3.50 |
| MAX | 3.8 | .00 | 14 | 153 | 139 | 110 | .00 | .00 | .00 | 200 | .30 | 73 |
| MIN | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| AC-FT | 11 | .00 | 34 | 389 | 365 | 486 | .00 | .00 | .00 | 681 | .6 | 208 |

CAL YR 1977 TOTAL 405.89 MEAN 1.11 MAX 173 MIN .00 AC-FT 805
WTR YR 1978 TOTAL 1096.67 MEAN 3.00 MAX 200 MIN .00 AC-FT 2180

NOTE.--No gage-height record July 5 to Aug. 8.

SAN SIMON WASH BASIN

## 09535300 VAMORI WASH AT KOM VO, AZ

LOCATION.--Lat 31°57'04", long 112°20'50", in NW¼ sec.14, T.17 S., R.1 W (unsurveyed), Pima County, Hydrologic Unit 15080101, in Papago Indian Reservation, on right bank 200 ft (61 m) downstream from road crossing, 0.6 mi (1.0 km) south of Kom Vo and 5 mi (8 km) upstream from mouth.

DRAINAGE AREA.--1,250 $mi^2$ (3,240 $km^2$), approximately, of which about 250 $mi^2$ (650 $km^2$) is in Mexico.

PERIOD OF RECORD.--February 1972 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,770 ft (539 m), from topographic map.

REMARKS.--Records good except those for period of no gage-height record, Jan. 27 to Mar. 4, which are poor.

AVERAGE DISCHARGE.--6 years, 9.19 $ft^3/s$ (0.260 $m^3/s$), 6,660 acre-ft/yr (8.21 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,880 $ft^3/s$ (53.2 $m^3/s$) Oct. 20, 1972, gage height, 9.44 ft (2.877 m), from rating curve extended above 630 $ft^3/s$ (18 $m^3/s$); no flow for most of each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge (*) and peak discharges above base of 500 $ft^3/s$ (14 $m^3/s$):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) | Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Oct. 9 | 2400 | 581 | 16.45 | 7.30 | 2.225 | Feb. 13 | Unknown | 742 | 21.01 | 8.01 | 2.441 |
| Jan. 12 | 0430 | 634 | 17.95 | 7.52 | 2.292 | Aug. 13 | 0430 | *808 | 22.88 | 8.21 | 2.502 |

No flow for most of year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 98 | 21 |
| 2 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 19 | 115 |
| 3 | .00 | .00 | .00 | .00 | .00 | 200 | .00 | .00 | .00 | .00 | 21 | 4.5 |
| 4 | .00 | .00 | .00 | .00 | .00 | 44 | .00 | .00 | .00 | .00 | 28 | 1.5 |
| 5 | .00 | .00 | .00 | .00 | .00 | 3.2 | .00 | .00 | .00 | .00 | 13 | 27 |
| 6 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 34 | 2.8 |
| 7 | .00 | .00 | .00 | .00 | .00 | 1.2 | .00 | .00 | .00 | .00 | 22 | 72 |
| 8 | 35 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 6.3 | 24 |
| 9 | 308 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 16 |
| 10 | 210 | .00 | .00 | 2.1 | .00 | 39 | .00 | .00 | .00 | .00 | .00 | .41 |
| 11 | 48 | .00 | .00 | 136 | .00 | .70 | .00 | .00 | .00 | .00 | .00 | .00 |
| 12 | 10 | .00 | .00 | 528 | 100 | 17 | .00 | .00 | .00 | .00 | 69 | .00 |
| 13 | .00 | .00 | .00 | 149 | 600 | 19 | .00 | .00 | .00 | .00 | 401 | .00 |
| 14 | .00 | .00 | .00 | 16 | 200 | 23 | .00 | .00 | .00 | .00 | 7.8 | .00 |
| 15 | .00 | .00 | .00 | 4.2 | 10 | 61 | .00 | .00 | .00 | .00 | .00 | .00 |
| 16 | .00 | .00 | .00 | 108 | .00 | .47 | .00 | .00 | .00 | .00 | .00 | .00 |
| 17 | .00 | .00 | .00 | 201 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 18 | .00 | .00 | .00 | 40 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 19 | .00 | .00 | .00 | 16 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 20 | .00 | .00 | .00 | 4.8 | .00 | .00 | .00 | .00 | .00 | .00 | .70 | .00 |
| 21 | .00 | .00 | .00 | 16 | .00 | .00 | .00 | .00 | .00 | .00 | 4.0 | .00 |
| 22 | .00 | .00 | .00 | 30 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 23 | .00 | .00 | .00 | 24 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 24 | .00 | .00 | .00 | 2.0 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 25 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 26 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 111 | .00 | .00 |
| 27 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 1.9 | .00 | .00 |
| 28 | .00 | .00 | 48 | .00 | .00 | .00 | .00 | .00 | .00 | 12 | .00 | .00 |
| 29 | .00 | .00 | 30 | .00 | --- | .00 | .00 | .00 | .00 | .57 | .00 | .00 |
| 30 | .00 | .00 | 51 | .00 | --- | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 31 | .00 | --- | 14 | .00 | --- | .00 | --- | .00 | --- | 10 | .00 | --- |
| TOTAL | 611.00 | .00 | 143.00 | 1277.10 | 910.00 | 408.57 | .00 | .00 | .00 | 135.47 | 723.80 | 284.01 |
| MEAN | 19.7 | .000 | 4.61 | 41.2 | 32.5 | 13.2 | .000 | .000 | .000 | 4.37 | 23.3 | 9.47 |
| MAX | 308 | .00 | 51 | 528 | 600 | 200 | .00 | .00 | .00 | 111 | 401 | 115 |
| MIN | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| AC-FT | 1210 | .00 | 284 | 2530 | 1800 | 810 | .00 | .00 | .00 | 269 | 1440 | 563 |

CAL YR 1977 TOTAL 1084.40 MEAN 2.97 MAX 308 MIN .00 AC-FT 2150
WTR YR 1978 TOTAL 4492.95 MEAN 12.3 MAX 600 MIN .00 AC-FT 8910

NOTE.--No gage-height record Jan. 27 to Mar. 4.

09535300 VAMORI WASH AT KOM VO, AZ--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--January 1978 to current year.

REMARKS.--No flow observed on Feb. 14, Apr. 5, May 5, June 5, July 5.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | TUR-BID-ITY (JTU) | OXYGEN, DIS-SOLVED (MG/L) | COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) |
|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | |
| 02... | 1200 | 440 | 150 | 8.0 | 14.0 | 1600 | 9.6 | -- |
| MAR | | | | | | | | |
| 14... | 1230 | 13 | 93 | 7.6 | 15.0 | -- | -- | 6500 |
| AUG | | | | | | | | |
| 08... | 1000 | 21 | -- | -- | 26.0 | -- | -- | -- |

| DATE | STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | BICAR-BONATE (MG/L AS HCO3) |
|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | |
| 02... | -- | 59 | 0 | 18 | 3.4 | 9.1 | .5 | 7.3 | 92 |
| MAR | | | | | | | | | |
| 14... | 34000 | 65 | 7 | 21 | 3.0 | 4.0 | .2 | 4.4 | -- |
| AUG | | | | | | | | | |
| 08... | -- | 120 | 1 | 38 | 5.0 | 7.8 | .3 | 11 | 140 |

| DATE | CAR-BONATE (MG/L AS CO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER AC-FT) |
|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | |
| 02... | 0 | 9.1 | 2.4 | .2 | 8.8 | 101 | 104 | .14 |
| MAR | | | | | | | | |
| 14... | -- | 8.2 | 4.8 | .1 | 6.0 | 69 | 86 | .09 |
| AUG | | | | | | | | |
| 08... | -- | 8.9 | 3.8 | .4 | 14 | -- | 167 | .23 |

| DATE | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) | NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO-GEN, NH4 + ORG. SUSP. TOTAL (MG/L AS N) | NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N) | NITRO-GEN, TOTAL (MG/L AS N) | PHOS-PHORUS, TOTAL (MG/L AS P) | PHOS-PHORUS, DIS-SOLVED (MG/L AS P) | PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | | | |
| 02... | .87 | -- | .07 | -- | -- | -- | .51 | -- | 1.5 | .43 | -- |
| MAR | | | | | | | | | | | |
| 14... | .95 | -- | .01 | .98 | .99 | .70 | .29 | 1.9 | 1.3 | .13 | -- |
| AUG | | | | | | | | | | | |
| 08... | -- | 1.9 | -- | -- | -- | -- | -- | -- | -- | -- | .07 |

09535300 VAMORI WASH AT KOM VO, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | ARSENIC TOTAL (UG/L AS AS) | ARSENIC DIS-SOLVED (UG/L AS AS) | BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) | BARIUM, DIS-SOLVED (UG/L AS BA) | BORON, DIS-SOLVED (UG/L AS B) | CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) | CADMIUM DIS-SOLVED (UG/L AS CD) | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) | CHRO-MIUM, DIS-SOLVED (UG/L AS CR) |
|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | |
| 02... | 11 | 3 | 500 | 0 | -- | 8 | 3 | 60 | 20 |
| AUG | | | | | | | | | |
| 08... | -- | -- | -- | -- | 60 | -- | -- | -- | -- |

| DATE | COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) | COBALT, DIS-SOLVED (UG/L AS CO) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) | COPPER, DIS-SOLVED (UG/L AS CU) | IRON, TOTAL RECOV-ERABLE (UG/L AS FE) | IRON, DIS-SOLVED (UG/L AS FE) | LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) | LEAD, DIS-SOLVED (UG/L AS PB) | MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) |
|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | |
| 02... | 30 | 0 | 90 | 10 | 52000 | 30 | 67 | 4 | 1200 |
| AUG | | | | | | | | | |
| 08... | -- | -- | -- | -- | -- | 100 | -- | -- | -- |

| DATE | MANGA-NESE, DIS-SOLVED (UG/L AS MN) | MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) | MERCURY DIS-SOLVED (UG/L AS HG) | SELE-NIUM, TOTAL (UG/L AS SE) | SELE-NIUM, DIS-SOLVED (UG/L AS SE) | SILVER, TOTAL RECOV-ERABLE (UG/L AS AG) | SILVER, DIS-SOLVED (UG/L AS AG) | ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) | ZINC, DIS-SOLVED (UG/L AS ZN) |
|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | |
| 02... | 0 | .0 | .0 | 1 | 0 | 1 | 0 | 180 | 20 |
| AUG | | | | | | | | | |
| 08... | 130 | -- | -- | -- | -- | -- | -- | -- | -- |

| DATE | CARBON, ORGANIC TOTAL (MG/L AS C) | PHYTO-PLANK-TON, TOTAL (CELLS PER ML) | SEDI-MENT, SUS-PENDED (MG/L) | SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) | SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM |
|---|---|---|---|---|---|
| JAN | | | | | |
| 02... | -- | 4100 | 3820 | 4540 | 100 |
| MAR | | | | | |
| 14... | 12 | 820 | 1300 | 46 | 87 |
| SEP | | | | | |
| 05... | -- | -- | 1870 | 262 | 98 |

RIO SONOYTA BASIN

SAN SIMON WASH BASIN

09535300 VAMORI WASH AT KOM VO, AZ--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR JANUARY 1978 TO SEPTEMBER 1978

PHYTOPLANKTON

| | | |
|---|---|---|
| DATE | JAN 2,78 | MAR 14,78 |
| TIME | 1200 | 1230 |
| TOTAL CELLS/ML | 4100 | 820 |
| DIVERSITY: DIVISION | 0.1 | 0.0 |
| .CLASS | 0.1 | 0.0 |
| ..ORDER | 0.3 | 0.0 |
| ...FAMILY | 0.3 | 1.6 |
| ....GENUS | 0.3 | 1.6 |

| ORGANISM | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT |
|---|---|---|---|---|
| CHRYSOPHYTA | | | | |
| .BACILLARIOPHYCEAE | | | | |
| ..PENNALES | | | | |
| ...FRAGILARIACEAE | | | | |
| ....SYNEDRA | -- | - | 270# | 33 |
| ...NAVICULACEAE | | | | |
| ....NAVICULA | | | | |
| ...NITZSCHIACEAE | -- | - | 270# | 33 |
| ....NITZSCHIA | 35 | 1 | 270# | 33 |
| CYANOPHYTA (BLUE-GREEN ALGAE) | | | | |
| .CYANOPHYCEAE | | | | |
| ..CHROCCOCCALES | | | | |
| ...CHROCCOCCAEAE | | | | |
| ....ANACYSTIS | | | | |
| ..HORMOGONALES | 140 | 3 | -- | - |
| ...OSCILLATORIACEAE | | | | |
| ....OSCILLATORIA | 3900# | 96 | -- | - |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

WHITEWATER DRAW BASIN

## 09537500 WHITEWATER DRAW NEAR DOUGLAS, AZ

LOCATION.--Lat 31°21'08", long 109°35'04", in SW¼SE¼ sec.10, T.24 S., R.27 E., Cochise County, Hydrologic Unit 15080301, on downstream side of pier of bridge on U.S. Highway 80, 1.5 mi (2.4 km) upstream from international boundary and 2 mi (3 km) west of Douglas.

DRAINAGE AREA.--1,023 $mi^2$ (2,650 $km^2$).

PERIOD OF RECORD.--August to October 1911 (gage heights and discharge measurements only), July to October 1912, January to June 1913, October 1913, December 1913 to June 1914, February to June 1915, October 1915 to September 1919, October 1919 to April 1922 (gage heights and discharge measurements only), June 1930 to December 1933, May 1935 to July 1947, October 1947 to current year. (July 1954 to March 1955 monthly discharge only.) Monthly discharge only for some periods, published in WSP 1313. Records for July to September, November 1913, July 1914 to January 1915, July to September 1915, published in WSP 359, 389, 409, and 1049 have been found to be unreliable and should not be used. Published as White River near Douglas 1911 and as White Water River near Douglas 1912.

REVISED RECORDS.--See PERIOD OF RECORD.

GAGE.--Water-stage recorder. Datum of gage is 3,909.14 ft (1,191.506 m) National Geodetic Vertical Datum of 1929. Prior to Apr. 30, 1922, nonrecording gages at various sites between 0.3 mi (0.5 km) upstream and 0.8 mi (1.3 km) downstream, at different datums. June 1, 1930, to Apr. 25, 1972, water-stage recorder at present site, at datum 2.17 ft (0.661 m) lower prior to May 14, 1938, and at datum 2.20 ft (0.671 m) lower May 14, 1938, to Apr. 25, 1972. Apr. 26, 1972, to Apr. 10, 1974, water-stage recorder at site 200 ft (61 m) upstream at datum 4.40 ft (1.341 m) higher.

REMARKS.--Records poor. Irrigation of about 40,000 acres (162 $km^2$)—in 1978—above station, by pumping from ground water. Whitewater Draw discharges into Gulf of California through Rio Yaqui in Mexico. Records show flow at international boundary except for smelter waste water, which enters stream below station.

AVERAGE DISCHARGE.--49 years (water years 1916-19, 1931-33, 1936-46, 1948-78), 10.0 $ft^3/s$ (0.283 $m^3/s$), 7,240 acre-ft/yr (8.93 $hm^3/yr$); median of yearly mean discharges, 8.3 $ft^3/s$ (0.24 $m^3/s$), 6,010 acre-ft/yr (7.4 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,060 $ft^3/s$ (143 $m^3/s$) Aug. 7, 1955; maximum gage height, 16.55 ft (5.044 m) July 29, 1966; no flow at times in most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,020 $ft^3/s$ (85.5 $m^3/s$) Oct. 9, gage height, 12.28 ft (3.743 m), base discharge, 1,000 $ft^3/s$ (28 $m^3/s$); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .00 | .21 | .12 | .12 | .07 | .06 | .03 | .00 | .00 | .00 | .00 | .10 |
| 2 | .00 | .20 | .14 | .13 | .06 | .06 | .03 | .00 | .00 | .00 | 10 | .10 |
| 3 | .00 | .20 | .15 | .13 | .06 | .06 | .03 | .00 | .00 | .00 | 299 | .10 |
| 4 | .00 | .18 | .15 | .13 | .06 | .05 | .03 | .00 | .00 | .00 | 177 | .10 |
| 5 | .00 | .18 | .15 | .12 | .06 | .05 | .02 | .00 | .00 | .00 | 14 | .10 |
| 6 | 17 | .28 | .14 | .12 | .06 | .06 | .01 | .00 | .00 | .00 | .10 | .10 |
| 7 | 40 | .53 | .17 | .12 | .08 | .05 | .00 | .00 | .00 | .00 | .10 | .00 |
| 8 | 448 | .42 | .15 | .11 | .07 | .05 | .00 | .00 | .00 | .00 | .00 | .00 |
| 9 | 1160 | .18 | .16 | .10 | .06 | .05 | .00 | .00 | .00 | .00 | .00 | .00 |
| 10 | 868 | .17 | .14 | .09 | .06 | .06 | .00 | .00 | .00 | .00 | .00 | .00 |
| 11 | 150 | .16 | .19 | .11 | .08 | .06 | .00 | .00 | .00 | .00 | .00 | .00 |
| 12 | 89 | .17 | .20 | .09 | .16 | .06 | .00 | .00 | .00 | .00 | 96 | .00 |
| 13 | 64 | .17 | .14 | .08 | .07 | .06 | .00 | .00 | .00 | .00 | 20 | .00 |
| 14 | 54 | .18 | .12 | .08 | .06 | .07 | .00 | .00 | .00 | .90 | .50 | .00 |
| 15 | 46 | .17 | .14 | .09 | .06 | .07 | .00 | .00 | .00 | 16 | .30 | .00 |
| 16 | 40 | .18 | .14 | .22 | .06 | .05 | .00 | .00 | .00 | .00 | .20 | .00 |
| 17 | 35 | .19 | .11 | .11 | .06 | .05 | .00 | .00 | .00 | .00 | 1.4 | .00 |
| 18 | 31 | .18 | .11 | .09 | .05 | .05 | .00 | .00 | .00 | .00 | 15 | .00 |
| 19 | 23 | .17 | .10 | .08 | .05 | .05 | .00 | .00 | .00 | .00 | 18 | .00 |
| 20 | 8.8 | .17 | .08 | .08 | .05 | .05 | .00 | .00 | .00 | .00 | .50 | .00 |
| 21 | .43 | .13 | .07 | .08 | .05 | .05 | .00 | .00 | .00 | .00 | .40 | .00 |
| 22 | .29 | .13 | .08 | .08 | .04 | .05 | .00 | .00 | .00 | .00 | .30 | .00 |
| 23 | .26 | .14 | .09 | .08 | .04 | .04 | .00 | .00 | .00 | .00 | 27 | .00 |
| 24 | .24 | .14 | .14 | .07 | .05 | .04 | .00 | .00 | .00 | .00 | 9.4 | .00 |
| 25 | .22 | .13 | .18 | .07 | .05 | .04 | .00 | .00 | .00 | .00 | .40 | .00 |
| 26 | .22 | .13 | .17 | .07 | .05 | .04 | .00 | .00 | .00 | 7.5 | .20 | .00 |
| 27 | .24 | .13 | .23 | .06 | .05 | .04 | .00 | .00 | .00 | 9.9 | .20 | .00 |
| 28 | .22 | .12 | .44 | .06 | .06 | .04 | .00 | .00 | .00 | .90 | .20 | .00 |
| 29 | .27 | .10 | .54 | .06 | --- | .04 | .00 | .00 | .00 | .00 | .10 | .00 |
| 30 | .30 | .11 | .26 | .06 | --- | .04 | .00 | .00 | .00 | .00 | .10 | .00 |
| 31 | .20 | --- | .13 | .07 | --- | .04 | --- | .00 | --- | .00 | .10 | --- |
| TOTAL | 3076.69 | 5.55 | 5.13 | 2.96 | 1.73 | 1.58 | .15 | .00 | .00 | 35.20 | 690.50 | .60 |
| MEAN | 99.2 | .19 | .17 | .095 | .062 | .051 | .005 | .000 | .000 | 1.14 | 22.3 | .020 |
| MAX | 1160 | .53 | .54 | .22 | .16 | .07 | .03 | .00 | .00 | 16 | 299 | .10 |
| MIN | .00 | .10 | .07 | .06 | .04 | .04 | .00 | .00 | .00 | .00 | .00 | .00 |
| AC-FT | 6100 | 11 | 10 | 5.9 | 3.4 | 3.1 | .3 | .00 | .00 | 70 | 1370 | 1.2 |

CAL YR 1977 TOTAL 5382.88 MEAN 14.7 MAX 1160 MIN .00 AC-FT 10680
WTR YR 1978 TOTAL 3820.09 MEAN 10.5 MAX 1160 MIN .00 AC-FT 7580

PERIOD OF RECORD.--January 1978 to current year.

REMARKS.--No flow observed Apr. 20, May 24, June 26, July 5. Sept. 11.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | OXYGEN, DIS-SOLVED (MG/L) | COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) | STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAR 03... | 1300 | .05 | 2200 | 8.0 | 15.0 | 10.2 | 55 | 140 | 520 | 290 | 120 |

| DATE | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER AC-FT) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAR 03... | 53 | 320 | 6.1 | 12 | 520 | 290 | .5 | 6.4 | 1490 | 1460 | 2.03 |

| DATE | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) | NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO-GEN,NH4 + ORG. SUSP. TOTAL (MG/L AS N) | NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N) | NITRO-GEN, TOTAL (MG/L AS N) | PHOS-PHORUS, TOTAL (MG/L AS P) | PHOS-PHORUS, DIS-SOLVED (MG/L AS P) |
|---|---|---|---|---|---|---|---|---|---|
| MAR 03... | .14 | .01 | .54 | .55 | .08 | .47 | .69 | .00 | .01 |

SULPHUR SPRING VALLEY

WHITEWATER DRAW BASIN

09537500 WHITEWATER DRAW NEAR DOUGLAS, AZ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | ARSENIC TOTAL (UG/L AS AS) | ARSENIC DIS-SOLVED (UG/L AS AS) | BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) | BARIUM, DIS-SOLVED (UG/L AS BA) | CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) | CADMIUM DIS-SOLVED (UG/L AS CD) | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) | CHRO-MIUM, DIS-SOLVED (UG/L AS CR) | COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) |
|---|---|---|---|---|---|---|---|---|---|
| MAR | | | | | | | | | |
| 03... | 3 | 3 | 200 | 200 | 2 | 0 | 0 | 0 | 0 |

| DATE | COBALT, DIS-SOLVED (UG/L AS CO) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) | COPPER, DIS-SOLVED (UG/L AS CU) | IRON, TOTAL RECOV-ERABLE (UG/L AS FE) | IRON, DIS-SOLVED (UG/L AS FE) | LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) | LEAD, DIS-SOLVED (UG/L AS PB) | MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) | MANGA-NESE, DIS-SOLVED (UG/L AS MN) |
|---|---|---|---|---|---|---|---|---|---|
| MAR | | | | | | | | | |
| 03... | 0 | 90 | 27 | 470 | 10 | 9 | 0 | 90 | 5 |

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) | MERCURY DIS-SOLVED (UG/L AS HG) | SELE-NIUM, TOTAL (UG/L AS SE) | SELE-NIUM, DIS-SOLVED (UG/L AS SE) | SILVER, TOTAL RECOV-ERABLE (UG/L AS AG) | SILVER, DIS-SOLVED (UG/L AS AG) | ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) | ZINC, DIS-SOLVED (UG/L AS ZN) |
|---|---|---|---|---|---|---|---|---|
| MAR | | | | | | | | |
| 03... | .0 | .1 | 2 | 2 | 0 | 0 | 40 | 20 |

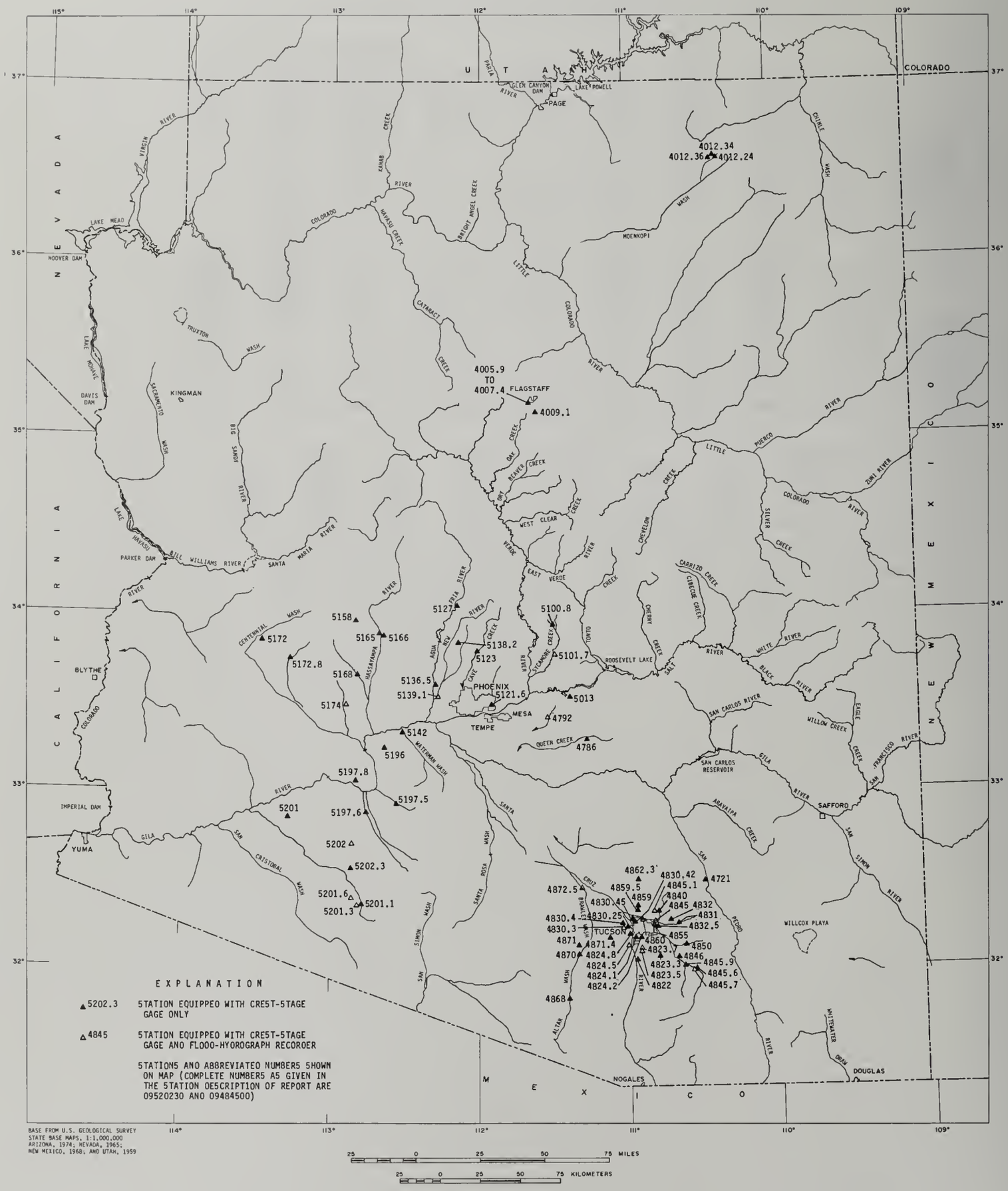


FIGURE 7.--MAP OF ARIZONA SHOWING LOCATION OF PARTIAL-RECORD GAGING STATIONS.

## DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

As the number of streams on which streamflow information is likely to be desired far exceeds the number of stream-gaging stations feasible to operate at one time, the Geological Survey collects limited streamflow data at sites other than stream-gaging stations. When limited streamflow data are collected on a systematic basis over a period of years for use in hydrologic analyses, the site at which the data are collected is called a partial-record station. Data collected at these partial-record stations are usable in low-flow or floodflow analyses, depending on the type of data collected. In addition, discharge measurements are made at other sites not included in the partial-record program. These measurements are generally made in times of drought or flood to give better areal coverage to those events. Those measurements and others collected for some special reason are called measurements at miscellaneous sites.

### Crest-stage partial-record stations

The following table contains annual maximum discharges for crest-stage stations. A crest-stage gage is a device which will register the peak stage occurring between inspections of the gage. A stage-discharge relation for each gage is developed from discharge measurements made by indirect measurements of peak flow or by current meter. The date of the maximum discharge is not always certain but is usually determined by comparison with nearby continuous-record stations, weather records, or local inquiry. Only the maximum discharge for each water year is given. Information on some lower floods may have been obtained, and discharge measurements may have been made for purposes of establishing the stage-discharge relation, but these are not published herein. The years given in the period of record represent water years for which the annual maximum has been determined.

Annual maximum discharge at crest-stage partial-record stations during water year 1978

| Station No. | Station name | Location | Drainage area ($mi^2$) | Period of record | Annual maximum | | |
|---|---|---|---|---|---|---|---|
| | | | | | Date | Gage height (ft) | Discharge ($ft^3/s$) |
| | | Little Colorado River basin | | | | | |
| 09400590 | Rio de Flag at Hidden Hollow Road, at Flagstaff, AZ | Lat 35°14'31", long 111°41'02", in SW¼SW¼ sec.32, T.22 N., R.7 E., Coconino County, at Hidden Hollow Road, 1.4 mi northwest of the Museum of Northern Arizona, and 3.4 mi northwest of downtown Flagstaff. | 31.6 | 1970-78 | 4- -78 | 2.79 | 144 |
| 09400595 | Schultz Canyon at Flagstaff, AZ | Lat 35°13'37", long 111°39'29", in SE¼SW¼ sec.4, T.21 N., R.7 E., Coconino County, at U.S. Highway 180, 0.6 mi south of the Museum of Northern Arizona in Flagstaff. | 6.09 | 1970-78 | 4- -78 | 2.70 | 29 |
| 09400600 | Rio de Flag at Flagstaff, AZ | Lat 35°13'18", long 111°39'24", in NW¼NE¼ sec.9, T.21 N., R.7 E., Coconino County, at west side of Crescent Drive in Flagstaff. | 51.0 | 1970-78 | 4- -78 | 7.48 | 128 |
| 09400650 | Sinclair Wash at Flagstaff, AZ | Lat 35°09'50", long 111°40'48", in NW¼NW¼ sec.32, T.21 N., R.7 E., Coconino County, at Holmes Avenue in the community of Palmerville at Flagstaff. | 8.16 | 1970-78 | 2-28-78 or 3- 1-78 | 5.40 | 37 |
| 09400655 | Rio de Flag at Interstate 40 at Flagstaff, AZ | Lat 35°11'04", long 111°37'56", in SE¼SE¼ sec.22, T.21 N., R.7 E., in Coconino County on left bank 80 ft upstream from bridge for eastbound lanes of Interstate 40, in Flagstaff. | 68.0 | 1973, 1976-78 | 2-28-78 or 3- 1-78 | 7.93 | 153 |
| 09400660 | Bow and Arrow Wash at Flagstaff, AZ | Lat 35°09'58", long 111°39'10", in NW¼NE¼ sec.33, T.21 N., R.7 E., Coconino County, at Zuni Road in Flagstaff. | 2.14 | 1969-78 | 10- 6-77 | 5.15 | 20 |
| 09400680 | Switzer Canyon at Flagstaff, AZ | Lat 35°12'44", long 111°38'21", in SW¼SE¼ sec.10, T.21 N., R.7 E., Coconino County at Turquoise and Oak Streets in Flagstaff. | 1.87 | 1969-78 | 2-28-78 | 5.29 | 90 |
| 09400700 | Switzer Canyon tributary at Flagstaff, AZ | Lat 35°12'03", long 111°36'46", in NE¼SE¼ sec.14, T.21 N., R.7 E., Coconino County, at gravel road 500 ft upstream from Interstate 40 and 0.25 mi downstream from U.S. Highway 66 in Flagstaff. | a7.31 | 1968-78 | 7-15-78 or 7-26-78 | 4.35 | 76 |
| 09400730 | Lockett-Fanning diversion at Flagstaff, AZ | Lat 35°13'19", long 111°35'58", in NW¼NE¼ sec.12, T.21 N., R.7 E., Coconino County, at Linda Vista Drive in Flagstaff. | 1.05 | 1969-78 | 7-26-78 | 5.06 | 54 |
| 09400740 | Harenburg Wash at Flagstaff, AZ | Lat 35°13'09", long 111°35'16", in SE¼NW¼ sec.7, T.21 N., R.8 E., Coconino County, at AT&SF railroad tracks at the east edge of Flagstaff. | 2.41 | 1969-78 | 2-28-78 or 3- 1-78 | 4.19 | 29 |
| 09401224 | Coal Mine Wash near Kayenta, AZ | Lat 36°32'52", long 110°22'11", on the Navajo Indian Reservation 14 mi southwest of Kayenta in Navajo County. | 34.1 | 1974-78 | 7-24-78 | ------- | b4.0 |
| 09401234 | Yellow Water Canyon near Kayenta, AZ | Lat 36°34'39", long 110°22'49", on the Navajo Indian Reservation 11 mi southwest of Kayenta in Navajo County. | 18.6 | 1974-78 | 7-24-78 | ------- | b2.0 |
| 09401236 | Yellow Water Canyon near Shonto, AZ | Lat 36°30'33", long 110°26'20", on the Navajo Indian Reservation 1.9 mi above mouth, 13 mi southeast of Shonto, and 18 mi southwest of Kayenta in Navajo County. | 49 | 1975-78 | 7-24-78 | ------- | b15 |

See footnotes at end of the table.

Annual maximum discharge at crest-stage partial-record stations during water year 1978--Continued

| Station No. | Station name | Location | Drainage area ($mi^2$) | Period of record | Annual maximum | | |
|---|---|---|---|---|---|---|---|
| | | | | | Date | Gage height (ft) | Dis-charge ($ft^3/s$) |
| | | Gila River basin | | | | | |
| 09472100 | Peck Canyon tributary near Redington, AZ | Lat 32°29'12", long 110°30'00", in SW¼SW¼ sec.10, T.11 S., R.18 E., Pima County, on left bank 0.2 mi upstream from mouth and 4 mi north of Redington. | 8.02 | 1967-72‡, 1973-78 | 10- 7-77 | 7.21 | 69 |
| 09478600 | Queen Creek tributary No. 3 at Whitlow Dam, AZ | Lat 33°17'30", long 111°16'50", in N½ sec.1, T.2 S., R.10 E., Pinal County, 0.5 mi south of Whitlow Dam, and 4.5 mi northeast of Florence Junction. | .37 | 1966-78 | 3- 2-78 | 6.95 | 240 |
| 09479200 | Queen Creek tributary at Apache Junction, AZ | Lat 33°24'13", long 111°32'27", in NE¼SW¼ sec.21, T.1 N., R.8 E., Pinal County, at eastbound lane of U.S. Highway 60, 0.6 mi southeast of Apache Junction. | .51 | 1961-68‡, 1973-78 | 1978 | -------- | (c) |
| 09482200 | Flato Wash near Sahuarita, AZ | Lat 32°02'43", long 110°57'00", in SW¼SE¼ sec.7, T.16 S., R.14 E., Pima County, at U.S. Highway 89, 6 mi north of Sahuarita. | d30.1 (23.4) | 1965-78 | 8- 1-78 | 4.52 | 580 |
| 09482330 | Pumping Wash near Vail, AZ | Lat 32°04'10", long 110°48'23", in SW¼NW¼ sec.3, T.16 S., R.15 E., Pima County, at road to pumping station 1.1 mi south of Interstate 10, and 5.7 mi west of Vail. | e.81 | 1966-78 | 10- 6-77 | 2.70 | 90 |
| 09482350 | South Fork Airport Wash near Tucson, AZ | Lat 32°06'00", long 110°54'30", in SE¼NE¼ sec.28, T.15 S., R.14 E., Pima County, at Hughes Access Road, 3.25 mi south of U.S. Highway 80, and 1.5 mi southeast of Tucson city limits. | f9.78 (5.40) | 1966-78 | 1-15-78 | -------- | 59 |
| 09482370 | North Fork Airport Wash near Tucson, AZ | Lat 32°06'40", long 110°54'30", in NE¼SE¼ sec.22, T.15 S., R.14 E., Pima County, at Hughes Access Road, 2.5 mi south of U.S. Highway 80, and 1 mi east of Tucson city limits. | f6.65 (1.37) | 1961, 1965-78 | 1-15-78 | 4.18 | 115 |
| 09482410 | Rodeo Wash at Tucson, AZ | Lat 32°10'20", long 110°58'35", in SW¼NW¼ sec.36, T.14 S., R.13 E., Pima County, at South 12th Avenue, 0.8 mi above mouth in Tucson city limits. | 5.92 | 1970-78 | 10- 6-77 | 3.44 | 170 |
| 09482420 | Julian Wash at Tucson, AZ | Lat 32°10'15", long 110°56'25", in SW¼NW¼ sec.32, T.14 S., R.14 E., Pima County, 1,600 ft above confluence with Tucson diversion channel, and 0.5 mi south of Ajo Road in Tucson. | 26.5 | 1970-78 | 10- 6-77 | 2.61 | 395 |
| 09482450 | West Branch Santa Cruz River at Tucson, AZ | Lat 32°08'00", long 111°00'30", in NE¼NE¼ sec.16, T.15 S., R.13 E., Pima County, at Valencia Road, 0.4 mi east of Mission Road, and 0.8 mi west of Tucson city limits. | 23.6 | 1966-78 | 10- 6-77 | 7.61 | 910 |
| 09482480 | Big Wash at Tucson, AZ | Lat 32°11'10", long 111°00'07", in SW¼NE¼ sec.27, T.14 S., R.13 E., Pima County, at Mission Road, 0.6 mi north of State Highway 86, in Tucson. | 2.75 | 1966-78 | 10- 6-77 | 4.63 | 380 |
| 09483025 | Silvercroft Wash at Tucson, AZ | Lat 32°13'53", long 111°00'10", in NW¼ sec.10, T.14 S., R.13 E., 0.1 mi west of Silverbell Road, 0.3 mi northwest of St. Mary's Hospital, and 0.4 mi north of Anklam Road at Tucson. | 2.74 | 1969-78 | 10- 6-77 | 1.89 | 290 |
| 09483030 | Anklam Wash at Tucson, AZ | Lat 32°13'30", long 111°01'50", in SE¼ sec.8, T.14 S., R.13 E., Pima County, at Anklam Road, 1 mi west of Tucson city limits, and 2 mi west of St. Mary's Hospital. | 2.11 | 1965-78 | 7-30-78 | 3.70 | 38 |
| 09483040 | West Speedway Wash near Tucson, AZ | Lat 32°14'20", long 111°02'43", in SE¼SE¼ sec.6, T.14 S., R.13 E., Pima County, at driveway to power substation off West Speedway Road, 2 mi west of Tucson city limits, and 3 mi northwest of St. Mary's Hospital. | .46 | 1965-78 | 10- 6-77 | 4.86 | 104 |
| 09483042 | Cemetery Wash at Tucson, AZ | Lat 32°15'50", long 110°58'38", in NW¼NW¼ sec.36, T.13 S., R.13 E., Pima County, at U.S. Highway 89, 0.25 mi north of junction with State Highway 84 in Tucson. | e1.17 | 1966-78 | 7-30-78 | 2.29 | 160 |

See footnotes at end of the table.

Annual maximum discharge at crest-stage partial-record stations during water year 1978--Continued

| Station No. | Station name | Location | Drainage area ($mi^2$) | Period of record | Annual maximum | | |
|---|---|---|---|---|---|---|---|
| | | | | | Date | Gage height (ft) | Discharge ($ft^3/s$) |
| | | Gila River basin--Continued | | | | | |
| 09483045 | Flowing Wells Wash at Tucson, AZ | Lat 32°15'55", long 110°59'40", in SW¼SW¼ sec.26, T.13 S., R.13 E., at intersection of Ft. Lowell Road and Flowing Wells Road in Tucson city limits. | 3.53 | 1971-78 | 7-30-78 | 3.38 | 185 |
| 09483100 | Tanque Verde Creek near Tucson, AZ | Lat 32°14'48", long 110°40'46", in NE¼NW¼ sec.2, T.14 S., R.16 E., Pima County, 4.4 mi east of Tanque Verde School, 7.4 mi upstream from Agua Caliente Wash, and 17.5 mi east of Tucson city hall. | 43.0 | 1959-74‡, 1975-78 | 7-25-78 | 3.73 | 1,280 |
| 09483200 | Agua Caliente Wash tributary near Tucson, AZ | Lat 32°16'07", long 110°44'15", in SW¼SW¼ sec.29, T.13 S., R.16 E., Pima County, at Soldier Trail, 1.4 mi north of Tanque Verde Road, and 5 mi northeast of Tucson city limits. | 2.04 | 1965-78 | 10- 6-77 | 5.13 | 70 |
| 09483250 | Rob Wash at Tucson, AZ | Lat 32°14'08", long 110°48'58", in NE¼NW¼ sec.9, T.14 S., R.15 E., at Speedway Blvd., 0.4 mi west of Pantano Road, and 1 mi north of East Broadway in Tucson city limits. | 2.08 | 1971-78 | 12-28-77 | 1.2 | b50 |
| 09484000 | Sabino Creek near Tucson, AZ | Lat 32°19'01", long 110°48'36", in SE¼NE¼ sec.9, T.13 S., R.15 E., Pima County, 0.5 mi north of Coronado National Forest boundary, and 12 mi northeast of Tucson city hall. | 35.5 | 1932-74‡, 1975-78 | 3- 2-78 | 8.20 | 3,160 |
| 09484500 | Tanque Verde Creek at Tucson, AZ | Lat 32°15'57", long 110°50'27", in SE¼SE¼ sec.30, T.13 S., R.15 E., Pima County, at Sabino Canyon Road, 1 mi downstream from Sabino Creek, and 1.25 mi northeast of Tucson city limits. | 219 | 1940-45‡, 1966-78 | 3- 2-78 | 5.45 | 3,880 |
| 09484510 | Ventana Canyon Wash near Tucson, AZ | Lat 32°18'35", long 110°50'20", in SW¼SW¼ sec.8, T.13 S., R.15 E., Pima County, at Sunrise Drive (Sabino Canyon West Road), 0.5 mi above Esperero Wash, and 4 mi northeast of Tucson city limits. | 6.46 | 1965-78 | 7-25-78 | 13.18 | 185 |
| 09484560 | Cienega Creek near Pantano, AZ | Lat 31°59'08", long 110°33'57", in NW¼ sec.1, T.17 S., R.17 E., Pima County, on downstream end of first pier from right abutment of bridge on Interstate 10, and 1.2 mi southeast of Pantano. | 289 | 1968-75‡, 1976-78 | 10- 6-77 | 4.87 | 900 |
| 09484570 | Mescal Arroyo near Pantano, AZ | Lat 31°59'23", long 110°33'52", in NE¼NW¼ sec.1, T.17 S., R.17 E., Pima County, at county road, 0.25 mi above mouth, and 1.1 mi southeast of Pantano. | 38.4 | 1965-78 | 10- 6-77 | 6.29 | 2,100 |
| 09484590 | Davidson Canyon Wash near Vail, AZ | Lat 31°59'37", long 110°38'40", in SW¼SE¼ sec.31, T.16 S., R.17 E., Pima County, on right bank 0.3 mi upstream from Interstate 10, 2.0 mi upstream from mouth, and 5.5 mi southeast of Vail. | 50.5 | 1968-75‡, 1976-78 | 10- 6-77 | 5.18 | 3,040 |
| 09484600 | Pantano Wash near Vail, AZ | Lat 32°02'09", long 110°40'37", in SW¼SE¼ sec.14, T.16 S., R.16 E., Pima County, 60 ft upstream from dam, 2.2 mi southeast of Vail, and 20 mi southeast of Tucson city hall. | 457 | 1959-74‡, 1975-78 | 9- 2-75<br>7-25-76<br>9-10-77<br>10- 6-77 | 6.70<br>10.86<br>7.31<br>6.71 | g1,200<br>g5,200<br>g1,600<br>1,300 |
| 09485000 | Rincon Creek near Tucson, AZ | Lat 32°07'46", long 110°37'32", in NW¼NE¼ sec.17, T.15 S., R.17 E., Pima County, 9 mi upstream from mouth, and 22 mi southeast of Tucson city hall. | 44.8 | 1952-74‡, 1975-78 | 1-15-78 | 6.71 | 2,440 |
| 09485500 | Pantano Wash at Tucson, AZ | Lat 32°14'57", long 110°50'53", in NW¼NE¼ sec.6, T.14 S., R.15 E., Pima County, at Tanque Verde Road, 0.7 mi northeast of Tucson city limits, and 1.75 mi above mouth. | 602 | 1940‡, 1958, 1965-76 | (h) | | |
| 09485900 | Pima Wash near Tucson, AZ | Lat 32°20'15", long 110°57'35", in SW¼SW¼ sec.31, T.12 S., R.14 E., Pima County, at Ina Road, and 4 mi north of Tucson city limits. | 4.93 | 1964-78 | 7-26-78 | 12.93 | 300 |
| 09485950 | Geronimo Wash near Tucson, AZ | Lat 32°19'56", long 110°56'37", in SE¼NE¼ sec.6, T.13 S., R.14 E., Pima County, at Skyline Drive, 0.4 mi southeast of Ina Road, and 3.5 mi north of Tucson city limits. | 2.08 | 1964-78 | 7-26-78 | 7.95 | 225 |

See footnotes at end of the table.

Annual maximum discharge at crest-stage partial-record stations during water year 1978--Continued

| Station No. | Station name | Location | Drainage area ($mi^2$) | Period of record | Annual maximum | | |
|---|---|---|---|---|---|---|---|
| | | | | | Date | Gage height (ft) | Discharge ($ft^3/s$) |
| | | Gila River basin--Continued | | | | | |
| 09486000 | Rillito Creek near Tucson, AZ | Lat 32°17'41", long 110°59'00", in SW¼SE¼ sec.14, T.13 S., R.13 E., Pima County, on right bank, 600 ft downstream from Pima Canyon, 1,800 ft downstream from bridge on U.S. Highway 89, 4.8 mi upstream from mouth, and 5.4 mi north of City Hall in Tucson. | 918 | 1915-75‡, 1976-78 | i9-25-76<br>i9- 5-77<br>3- 2-78 | 9.27<br>6.36<br>8.86 | 9,400<br>1,200<br>7,500 |
| 09486230 | Big Wash near Catalina, AZ | Lat 32°25'20", long 110°56'46", in NE¼NE¼ sec.6, T.11 S., R.14 E., Pima County, on right bank, 0.8 mi upstream from mouth at Canada del Oro, 0.9 mi downstream from Honey Bee Canyon, and 5.5 mi southwest of Catalina. | 109 | 1976-78 | i8- 9-77<br>1-15-78 | 7.46<br>7.19 | 3,750<br>3,200 |
| 09486800 | Altar Wash near Three Points, AZ | Lat 31°50'10", long 111°24'11", in SE¼NE¼ sec.27, T.18 S., R.9 E., Pima County, 0.2 mi upstream from bridge on State Highway 286, and 18 mi south of Three Points. | 463 | 1966-75‡, 1976-78 | 10- 6-77 | 8.83 | 10,100 |
| 09487000 | Brawley Wash near Three Points, AZ | Lat 32°04'39", long 111°20'08", in NW¼SW¼ sec.33, T.15 S., R.10 E., Pima County, 1,300 ft downstream from State Highway 86, 1.6 mi west of Three Points (Robles Junction), and 23 mi west of Tucson (revised). | 776 | 1962, 1966-78 | 10- 6-77 | 11.02 | 7,300 |
| 09487100 | Little Brawley Wash near Three Points, AZ | Lat 32°07'25", long 111°19'45", in SE¼NW¼ sec.16, T.15 S., R.10 E., Pima County, 3.4 mi north of Three Points. | 11.9 | 1968-78 | 10- 6-77 | 13.20 | 2,500 |
| 09487140 | San Joaquin Wash near Tucson, AZ | Lat 32°10'07", long 111°07'58", in NE¼SE¼ sec.32, T.14 S., R.12 E., Pima County, 1.1 mi northwest of the intersection of San Joaquin Road and the Tucson-Ajo Highway. | .45 | 1969-78 | 1-15-78 | 5.70 | 127 |
| 09487250 | Los Robles Wash near Marana, AZ | Lat 32°26'16", long 111°18'13", in SE¼SE¼ sec.27, T.11 S., R.10 E., Pima County, at Trico Road, 0.75 mi downstream from confluence of Brawley Wash and China Draw, 3 mi upstream from Blanco Wash, and 5 mi southwest of Marana. | 1,170 | 1962, 1966-78 | 10- 6-77 | 8.10 | 2,400 |
| 09501300 | Tortilla Creek at Tortilla Flat, AZ | Lat 33°31'38", long 111°23'13", in NW¼ sec.13, T.2 N., R.9 E. (unsurveyed), Maricopa County, 600 ft upstream from State Highway 88 and Tortilla Flat Store, and 3.7 mi southeast of Mormon Flat Dam. | 24.3 | 1966-78 | 3- 2-78 | 8.67 | 3,000 |
| 09510080 | West Fork Sycamore Creek near Sunflower, AZ | Lat 33°56'45", long 111°29'05", in SE¼ sec.13, T.7 N., R.8 E. (unsurveyed), Maricopa County, in Tonto National Forest, on right bank 1.2 mi upstream from confluence with East Fork, and 5.7 mi north of Sunflower. | 9.8 | 1961-74‡, 1978 | 3- 2-78 | 6.60 | 660 |
| 09510170 | Camp Creek near Sunflower, AZ | Lat 33°45'35", long 111°29'44", in SW¼ sec.24, T.5 N., R.8 E., Maricopa County, on right bank at upstream side of culvert on State Highway 87, half a mile upstream from mouth and 7 mi south of Sunflower. | 2.6 | 1963-66‡, 1967-78 | 3- 2-78 | 5.05 | 402 |
| 09512160 | Indian Bend Wash (at McDowell Road) at Scottsdale, AZ | Lat 33°27'57", long 111°54'54", in SW¼SE¼ sec.35, T.2 N., R.4 E., on both banks 25 ft upstream of weir at bridge on McDowell Road, 0.6 mi east of Scottsdale Road in Scottsdale. | (j) | 1961-66k, 1968-75l, 1976-78 | 3- 2-78 | 9.99 | b3,400 |
| 09512300 | Cave Creek near Cave Creek, AZ | Lat 33°47'00", long 112°00'24", in SW¼ sec.12, T.5 N., R.3 E., Maricopa County, on left bank, 200 ft upstream from Prescott-to-Mesa transmission line, 5 mi southwest of town of Cave Creek, and 5.0 mi upstream from Cave Creek Dam. | 121 | 1958-67‡, 1968-78 | 3- 2-78 | 7.52 | 7,500 |
| 09512700 | Agua Fria River tributary No. 2 near Rock Springs, AZ | Lat 34°02'00", long 112°08'42", in SW¼ sec.15, T.8 N., R.2 E., Maricopa County, at State Highway 69, 1 mi south of Rock Springs. | 1.11 | 1963-78 | 3- 2-78 | 14.6 | 920 |
| 09513650 | Agua Fria River at El Mirage, AZ | Lat 33°36'24", long 112°18'14", in NW¼NW¼ sec.18, T.3 N., R.1 E., Maricopa County, at Grand Avenue, 0.75 mi southeast of El Mirage. | m1,637 | 1963-78 | 3- 2-78 | 7.95 | 9,870 |

See footnotes at end of the table.

Annual maximum discharge at crest-stage partial-record stations during water year 1978--Continued

| Station No. | Station name | Location | Drainage area ($mi^2$) | Period of record | Annual maximum | | |
|---|---|---|---|---|---|---|---|
| | | | | | Date | Gage height (ft) | Discharge ($ft^3/s$) |
| | | Gila River basin--Continued | | | | | |
| 09513820 | Deadman Wash near New River, AZ | Lat 33°50'30", long 112°08'40", in NW¼ sec.27, T.6 N., R.2 E., Maricopa County, at State Highway 69, 4.5 mi south of New River. | 11.1 | 1960-78 | 3- 2-78 | 5.11 | 1,400 |
| 09513910 | New River near Glendale, AZ | Lat 33°32'12", long 112°16'52", in NE¼NW¼ sec.8, T.2 N., R.1 E., Maricopa County, at Glendale Avenue, 2 mi upstream from mouth, and 6 mi west of Glendale. | 323 | 1961-63, 1964-70‡, 1971-78 | 3- 2-78 | 9.08 | 12,300 |
| 09514200 | Waterman Wash near Buckeye, AZ | Lat 33°19'49", long 112°30'33", in SW¼NE¼ sec.24, T.1 S., R.3 W., Maricopa County, 2.4 mi above mouth, 5.2 mi southeast of Buckeye. | 403 | 1964-78 | 8- 4-78 | 4.72 | 1,150 |
| 09515800 | Hartman Wash near Wickenburg, AZ | Lat 33°57'46", long 112°49'40", in SE¼ sec.12, T.7 N., R.6 W., Maricopa County, at U.S. Highway 60, 5.7 mi west of Wickenburg. | 5.57 | 1964-78 | 1-17-78 | 3.34 | n60 |
| 09516500 | Hassayampa River near Morristown, AZ | Lat 33°53'06", long 112°39'41", in SW¼SE¼ sec.3, T.6 N., R.4 W., Maricopa County, 3.0 mi northwest of Morristown, 7 mi southeast of Wickenburg. | 774 | 1939-47‡, 1954, 1956, 1964-78 | 3- 2-78 | 12.93 | 24,000 |
| 09516600 | Ox Wash near Morristown, AZ | Lat 33°53'00", long 112°39'00", in NW¼ sec.11, T.6 N., R.4 W., Maricopa County, at U.S. Highway 60, 2.4 mi northwest of Morristown. | 6.31 | 1963-78 | 2-22-78 | 2.55 | 335 |
| 09516800 | Jack Rabbit Wash near Tonopah, AZ | Lat 33°39'32", long 112°49'40", in NE¼NW¼ sec.25, T.4 N., R.6 W., Maricopa County, 100 ft upstream from the Wickenburg-Hassayampa Road, 4.5 mi upstream from Star Wash, and 14 mi northeast of Tonopah. | 137 | 1964-78 | 10- 6-77 | 8.90 | 650 |
| 09517200 | Centennial Wash tributary near Wenden, AZ | Lat 33°50'40", long 113°27'00", in SW¼SW¼ sec.24, T.6 N., R.12 W., Yuma County, at U.S. Highway 60, 5 mi northeast of Wenden. | 2.79 | 1963-78 | 2-13-78 | 3.32 | 260 |
| 09517280 | Tiger Wash near Aguila, AZ | Lat 33°44'30", long 113°16'43", in SW¼SW¼ sec.26, T.5 N., R.10 W., Maricopa County, 17 mi south of Aguila. | 85.2 | 1963-78 | 3- 1-78 | 7.95 | 1,400 |
| 09517400 | Winters Wash near Tonopah, AZ | Lat 33°29'22", long 112°55'05", in SW¼NW¼ sec.30, T.2 N., R.6 W., Maricopa County, 0.3 mi downstream from Airline Road, and 1 mi east of Tonopah. | 47.8 | 1962-78 | 3- 2-78 | 7.1 | 1,800 |
| 09519600 | Rainbow Wash tributary near Buckeye, AZ | Lat 33°14'35", long 112°38'15", in NE¼ sec.23, T.2 S., R.4 W., Maricopa County, at U.S. Highway 80, 9.5 mi southwest of Buckeye. | f3.45 (1.02) | 1963-78 | 8- 4-78 | 4.41 | b240 |
| 09519750 | Bender Wash near Gila Bend, AZ | Lat 32°54'25", long 112°33'05", in NW¼ sec.15, T.6 S., R.3 W., Maricopa County, along side of Interstate 8, 10 mi southeast of Gila Bend. Prior to Oct. 1, 1966, at site 0.65 mi downstream. | 68.8 | 1963-78 | (o) | 4.46 | b110 |
| 09519760 | Sauceda Wash near Gila Bend, AZ | Lat 32°52'14", long 112°45'30", in SE¼SW¼ sec.27, T.6 S., R.5 W., Maricopa County, at State Highway 85, 5.3 mi south of Gila Bend. | p126 | 1963-78 | 8- 8-78 | 3.40 | 180 |
| 09519780 | Windmill Wash near Gila Bend, AZ | Lat 33°02'54", long 112°50'17", in SE¼ sec.25, T.4 S., R.6 W., Maricopa County, at county road, 10.5 mi northwest of Gila Bend. | 12.9 | 1964-78 | 4-13-78 | 5.82 | b20 |
| 09520100 | Military Wash near Sentinel, AZ | Lat 32°50'43", long 113°16'44", in SW¼ sec.3, T.7 S., R.10 W., Maricopa County, at U.S. Highway 80, 4.1 mi west of Sentinel. | 8.70 | 1963-78 | 8- 4-78 | 4.80 | 560 |
| 09520110 | Hot Shot Arroyo near Ajo, AZ | Lat 32°20'49", long 112°48'31", in SW¼ sec.29, T.12 S., R.5 W., Pima County, at State Highway 85, 3 mi southeast of Ajo. | .44 | 1966-78 | 10- 6-77 | 5.65 | 150 |

See footnotes at end of the table.

Annual maximum discharge at crest-stage partial-record stations during water year 1978--Continued

| Station No. | Station name | Location | Drainage area ($mi^2$) | Period of record | Annual maximum | | |
|---|---|---|---|---|---|---|---|
| | | | | | Date | Gage height (ft) | Discharge ($ft^3/s$) |
| | | Gila River basin--Continued | | | | | |
| 09520130 | Darby Arroyo near Ajo, AZ | Lat 32°21'19", long 112°49'31", in NW¼ sec.30, T.12 S., R.5 W., Pima County, at State Highway 85, 2 mi southeast of Ajo. | 4.72 | 1966-78 | 10- 6-77 | 7.91 | 1,070 |
| 09520160 | Gibson Arroyo at Ajo, AZ | Lat 32°22'48", long 112°51'40", in NW¼SW¼ sec.14, T.12 S., R.6 W., Pima County, at 2nd Avenue next to railroad tracks in Ajo. | 2.18 | 1967-78 | 8-11-78 | 3.80 | 380 |
| 09520200 | Black Gap Wash near Ajo, AZ | Lat 32°42'23", long 112°50'43", in NW¼NE¼ sec.26, T.8 S., R.6 W., Maricopa County, at State Highway 85, 5.7 mi north of Midway, and 23 mi north of Ajo. | 12.1 | 1963-78 | 1-15-78 | 5.66 | 364 |
| 09520230 | Crater Range Wash near Ajo, AZ | Lat 32°33'44", long 112°52'37", in NW¼NW¼ sec.15, T.10 S., R.6 W., Maricopa County, at State Highway 85, 4.1 mi north of Maricopa-Pima County line, and 13.5 mi north of Ajo. | 1.49 | 1963-78 | 1-15-78 | 1.93 | b65 |

‡ Operated as a continuous-record gaging station.
a Peak flows originate in 1.2 square miles of urban area at the downstream end of the basin. Little flow has come from the upper 6.1 square miles since at least 1964.
b Estimate.
c No flow.
d Drainage area revised 1978. Runoff from upper part is lost through extensive sheet and interbasin flow. The noncontributing area is shown in parentheses.
e Drainage area revised.
f Portion of drainage basin is generally noncontributing because of a major stock pond. The noncontributing area is shown in parentheses.
g Previously published figure revised.
h Station temporarily discontinued.
i Data omitted in previous reports.
j Not determined.
k Gage located at McDonald Drive, Indian School and McDonald Roads.
l Gage located at Thomas Road.
m Includes 1,459 square miles above Lake Pleasant that is noncontributing except during occasional periods of spill from Waddell Dam; does not include the area tributary to McMicken Dam from which water is diverted to the Agua Fria River. Diversions from McMicken Dam have negligible effect on peak flows of the Agua Fria River.
n About.
o Peak occurred between Aug. 4 and Sept. 6.
p Includes 20 square miles which also contributes to an adjoining basin.

Discharge measurements at miscellaneous sites

Measurements of streamflow at points other than gaging stations are given in the following table. Those that are measurements of base flow are designated by an asterisk (*); measurements of peak flow by a dagger (†).

Discharge measurements made at miscellaneous sites during water year 1978

| Stream | Tributary to | Location | Drainage area (sq mi) | Measured previously (water years) | Measurements | |
|---|---|---|---|---|---|---|
| | | | | | Date | Discharge (cfs) |
| | | Little Colorado River basin | | | | |
| Little Colorado River | Colorado River | Lat 34°25'18", long 109°24'07", in NE¼SW¼ sec.20, T.12 N., R.28 E., Apache County, at Road crossing 1.2 mi upstream from Salado Springs, 6.5 mi south of St. Johns. | -- | 1975-77 | 5-10-78<br>9-13-78 | 3.73<br>3.45 |
| Do---------- | -------do------- | Lat 34°26'00", long 109°22'40", in SE¼SE¼ sec.16, T.12 N., R.28 E., Apache County, 2.0 mi downstream from Salado Springs, 5.0 mi southwest of St. Johns. | -- | 1940-41, 1975-77 | 5-10-78<br>9-13-78 | 8.46<br>8.32 |
| Big Hollow Wash | Little Colorado River | Lat 34°32'29", long 109°25'29", in SW¼SE¼ sec.12, T.13 N., R.27 E., Apache County, below springs 3.5 mi northwest of St. Johns. | -- | 1976-77 | 5-11-78<br>9-14-78 | .15<br>.14 |
| Concho Spring | -------do------- | Lat 34°25'51", long 109°37'45", in NW¼NE¼ sec.19, T.12 N., R.26 E., Apache County, 3 mi southwest of Concho. | -- | 1942, 1946-61, 1966-68, 1976-77 | 5-10-78<br>9-12-78 | 1.65<br>1.39 |
| Stinking Springs | -------do------- | Lat 34°37'25", long 109°34'35", in SE¼SW¼ sec.10, T.14 N., R.26 E., Apache County, 3 mi northeast of Hunt. | -- | 1976-77 | 5-12-78 | .013 |
| | | Gila River basin | | | | |
| Campbell Blue Creek | Blue River | Lat 33°44'45", long 109°12'13", in sec.26, T.4½ N., R.30 E., Greenlee County, at U.S. Highway 666 near Blue. | -- | -- | 6-26-78 | *0.1E |
| Do---------- | -------do------- | Lat 33°44'16", long 109°06'50", in sec.35, T.4½ N., R.31 E., Greenlee County, 0.2 mi above Cat Creek near Blue. | -- | -- | 6-14-78 | *1E |
| Turkey Creek | Campbell Blue Creek | Lat 33°44'10", long 109°04'08", in NE¼ sec.31, T.4½ N., R.32 E., Greenlee County, 0.1 mi above Campbell Blue Creek near Blue. | -- | -- | 6-14-78 | *0.1E |
| Campbell Blue Creek | Blue River | Lat 33°43'13", long 109°02'38", in sec.6, T.7 S., R.21 W., Catron County, New Mexico, 100 ft above Blue River near Blue, Arizona. | -- | -- | 6-13-78 | *1.15 |
| Dry Blue Creek | Blue River | Lat 33°43'11", long 109°02'33", in sec.6, T.7 S., R.21 W., Catron County, New Mexico, 50 ft above Campbell Blue Creek near Blue, Arizona. | -- | -- | 6-13-78 | *1.03 |
| Blue River | San Francisco River | Lat 33°43'02", long 109°04'21", in NE¼ sec. 18, T.4 N., R.32 E., Greenlee County, 0.7 mi above Jackson Canyon near Blue. | -- | -- | 6-13-78 | *1.77 |
| Do---------- | -------do------- | Lat 33°37'38", long 109°05'48", in SW¼ sec.1, T.3 N., R.31 E., Greenlee County, 100 ft above Red Hill Road near Blue. | -- | -- | 6-13-78 | *1.40 |
| Do---------- | -------do------- | Lat 33°35'25", long 109°08'23", in SE¼ sec.21, T.3 N., R.31 E., Greenlee County, 0.2 mi above Largo Creek, near Blue. | -- | -- | 6-14-78 | *0.5E |
| Do---------- | -------do------- | Lat 33°32'58", long 109°11'52", in sec.1, T.2 N., R.30 E., Greenlee County at The Box near Blue. | -- | -- | 6-14-78 | *2.70 |
| KP Creek | Blue River | Lat 33°31'54", long 109°12'17", in sec.11, T.2 N., R.30 E., Greenlee County, 0.3 mi above Blue River near Blue. | -- | -- | 6-14-78 | *0.23 |
| Blue River | San Francisco River | Lat 33°29'36", long 109°12'36", in NE¼ sec.26 T.2 N., R.30 E., Greenlee County, 0.2 mi below Tornado Canyon near Blue. | -- | -- | 6-14-78 | *1.82 |
| Stray Horse Creek | Blue River | Lat 33°29'02", long 109°12'17", in SE¼ sec.26, T.2 N., R.30 E., Greenlee County, 0.1 mi above Blue River near Blue. | -- | -- | 6-15-78 | *0.2E |

See footnote at end of the table.

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Discharge measurements made at miscellaneous sites during water year 1978--Continued

| Stream | Tributary to | Location | Drainage area (sq mi) | Measured previously (water years) | Measurements | |
|---|---|---|---|---|---|---|
| | | | | | Date | Discharge (cfs) |
| | | Gila River basin--Continued | | | | |
| Ladron Spring Canyon | Blue River | Lat 33°27'33", long 109°10'47", in SW¼ sec.6, T.1 N., R.31 E., Greenlee County, 0.1 mi above Blue River near Blue. | -- | -- | 6-15-78 | 0.2E |
| Blue River | San Francisco River | Lat 33°26'49", long 109°10'49", in NW¼ sec.7, T.1 N., R.31 E., Greenlee County, 0.2 mi above Oak Creek near Blue. | -- | -- | 6-15-78 | *0.37 |
| Do---------- | -------do------- | Lat 33°24'58", long 109°11'32", in SE¼ sec.24, T.1 N., R.30 E., Greenlee County, at H U Bar Ranch near Blue. | -- | -- | 6-15-78 | *1.88 |
| Do---------- | -------do------- | Lat 33°20'57", long 109°10'55", in sec.18, T.1 S., R.31 E., Greenlee County, at Horse Canyon near Clifton. | -- | -- | 6-15-78 | *3.79 |
| Do---------- | -------do------- | Lat 33°17'45", long 109°11'30", in sec.31, T.1 S., R.31 E., Greenlee County, 1 mi below Fritz Canyon near Clifton. | -- | -- | 6-16-78 | *5.48 |
| Do---------- | -------do------- | Lat 33°16'18", long 109°11'38", in sec.7, T.2 S., R.31 E., Greenlee County, 0.1 mi above Pigeon Creek near Clifton. | -- | -- | 6-16-78 | *4.38 |
| Do---------- | -------do------- | Lat 33°13'21", long 109°12'07", in NW¼ sec.31, T.2 S., R.31 E., Greenlee County, 0.4 mi above Pat Creek near Clifton. | -- | -- | 6-17-78<br>7- 7-78 | *4.03<br>*2.44 |
| Do---------- | -------do------- | Lat 33°12'32", long 109°11'32", in SE¼ sec.31, T.2 S., R.31 E., Greenlee County, 300 ft above San Francisco River near Clifton. | -- | -- | 7- 7-78 | *0.81 |
| San Francisco River | Gila River | Lat 33°14'25", long 109°02'47", in sec.28, T.2 S., R.32 E., Greenlee County, at Arizona-New Mexico State line. | -- | -- | 5-29-78<br>6-21-78 | *60.2<br>*37.2 |
| Do---------- | -------do------- | Lat 33°14'15", long 109°05'23", in sec.30, T.2 S., R.32 E., Greenlee County, 0.1 mi above Coalson Canyon near Clifton. | -- | -- | 6-21-78 | *38.2 |
| Do---------- | -------do------- | Lat 33°14'03", long 109°06'15", in sec.25, T.2 S., R.31 E., Greenlee County, 0.25 mi below Indian Creek near Clifton. | -- | -- | 5-29-78<br>6-21-78 | *51.5<br>*35.4 |
| Do---------- | -------do------- | Lat 33°11'55", long 109°08'20", in SE¼ sec.3, T.3 S., R.31 E., Greenlee County, 500 ft below Harden Cienega near Clifton. | -- | -- | 5-29-78 | *54.5 |
| Dix Creek | San Francisco River | Lat 33°11'15", long 109°09'23", in SE¼ sec.9, T.3 S., R.31 E., Greenlee County, 1.5 mi above San Francisco River near Clifton. | -- | -- | 5-30-78 | *0.14 |
| San Francisco River | Gila River | Lat 33°12'35", long 109°11'28", in SE¼ sec.31, T.2 S., R.31 E., Greenlee County, 100 ft above Blue River near Clifton. | -- | -- | 5-30-78 | *54.5 |
| Blue River | San Francisco River | Lat 33°12'32", long 109°11'32", in SE¼ sec.31, T.2 S., R.31 E., Greenlee County, 300 ft above San Francisco River near Clifton. | -- | -- | 5-30-78 | *7.07 |
| San Francisco River | Gila River | Lat 33°12'22", long 109°11'29", in NE¼ sec.6, T.3 S., R.31 E., Greenlee County, 0.2 mi below Blue River near Clifton. | -- | -- | 5-30-78 | *60.5 |
| Do---------- | -------do------- | Lat 33°11'14", long 109°13'32", in NE¼ sec.11, T.3 S., R.30 E., Greenlee County, 0.25 mi below Bird Canyon near Clifton. | -- | -- | 5-31-78 | *56.7 |
| Do---------- | -------do------- | Lat 33°09'54", long 109°15'57", in SW¼ sec.16, T.3 S., R.30 E., Greenlee County, 0.2 mi below Santa Cruz Canyon near Clifton. | -- | -- | 5-31-78 | *57.1 |
| Do---------- | -------do------- | Lat 33°07'48", long 109°17'10", in NE¼ sec.32, T.3 S., R.30 E., Greenlee County, 0.5 mi below Sycamore Gulch near Clifton. | -- | -- | 5-31-78 | *58.4 |

See footnote at end of the table.

Discharge measurements made at miscellaneous sites during water year 1978--Continued

| Stream | Tributary to | Location | Drainage area (sq mi) | Measured previously (water years) | Measurements | |
|---|---|---|---|---|---|---|
| | | | | | Date | Discharge (cfs) |
| | | Gila River basin--Continued | | | | |
| San Francisco River | Gila River | Lat 33°05'44", long 109°18'22", in SE¼ sec.12, T.4 S., R.29 E., Greenlee County, 0.2 mi above Phelps Dodge Pumping Plant near Clifton. | -- | -- | 5-31-78 | *57.1 |
| Do---------- | -------do------- | Lat 33°04'50", long 109°18'16", in SW¼ sec.18, T.4 S., R.30 E., Greenlee County, 0.8 mi above Limestone Gulch near Clifton. | -- | -- | 6- 6-78 | *40.9 |
| Do---------- | -------do------- | Lat 33°04'15", long 109°17'52", in NW¼ sec.19, T.4 S., R.30 E., Greenlee County, at Limestone Gulch near Clifton. | -- | -- | 6- 6-78 | *40.4 |
| Do---------- | -------do------- | Lat 33°02'43", long 109°17'45", in NE¼ sec.31, T.4 S., R.30 E., Greenlee County, 0.3 mi above Ward Canyon near Clifton. | -- | -- | 6- 1-78 | *57.6 |
| Do---------- | -------do------- | Lat 33°00'31", long 109°19'40", in SW¼ sec.12, T.5 S., R.29 E., Greenlee County, 0.2 mi above Morenci Gulch near Clifton. | -- | -- | 6- 1-78 | *53.4 |
| Do---------- | -------do------- | Lat 32°58'58", long 109°21'58", in NE¼ sec.21, T.5 S., R.29 E., Greenlee County, 0.5 mi above Gila River near Clifton. | -- | -- | 6- 1-78 | *55.9 |
| Potrero Creek | Santa Cruz River | Lat 31°26'45", long 110°57'43", in NE¼NE¼ sec.12, T.23 S., R.13 E., Santa Cruz County, southeast of Nogales International Clean Water Project near Nogales. | 91.4 | -- | 10- 9-77 | +9,300 |
| Agua Fria Canyon | -------do------- | Lat 31°28'43", long 111°00'02", in SW¼SE¼ sec.27, T.22 S., R.13 E., Santa Cruz County, at Interstate 19 about 12 mi north of Nogales. | 40.2 | -- | 10- 9-77 | +12,000 |
| Peck Canyon | -------do------- | Lat 31°30'40", long 111°00'46", in SE¼ sec.16, T.22 S., R.13 E., Santa Cruz County, at Interstate 19 about 14 mi north of Nogales. | 47.8 | 1967 | 10- 9-77 | +2,800 |
| Rose Hill Wash | Pantano Wash | Lat 32°13'49", long 110°50'53", in SW¼NE¼ sec.7, T.14 S., R.15 E., Pima County, at Edgemont Street at Tucson. | 1.71 | -- | 9-21-78 | +492 |
| Canada del Oro | Santa Cruz River | Lat 32°33'23", long 110°50'53", in SW¼SE¼SE¼ sec.13, T.10 S., R.14 E., Pinal County, 1.0 mi above Golder Dam near Catalina. | -- | -- | 3- 8-78 | 104 |
| Do---------- | -------do------- | Lat 32°32'10", long 110°51'20", in NW¼SE¼NW¼ sec.25, T.10 S., R.14 E., Pinal County, 0.5 mi below Golder Dam near Catalina. | -- | -- | 3- 8-78 | 124 |
| Deadman Creek | Verde River | Lat 34°01'33", long 111°39'04", in sec.20, T.8 N., R.7 E. (unsurveyed), Yavapai County, in Tonto National Forest, 4.4 mi northeast of Horseshoe Dam. | 36.3 | -- | 3- 1-78 | +6,620 |
| Davenport Wash | -------do------- | Lat 33°59'54", long 111°38'32", in sec.32, T.8 N., R.7 E. (unsurveyed), Maricopa County, 13.7 mi northwest of Sunflower. | 25.5 | -- | 3- 1-78 | +5,500 |
| Lime Creek | -------do------- | Lat 33°59'11", long 111°45'03", in sec.4, T.7 N., R.6 E. (unsurveyed), Maricopa County, 2.5 mi west of Horseshoe Dam, near Carefree. | 41.9 | -- | 3- 1-78 | +5,180 |
| Sheep Creek | -------do------- | Lat 33°55'24", long 111°38'12", in sec.28, T.7 N., R.7 E. (unsurveyed), Maricopa County, 10.6 mi northwest of Sunflower. | 34.2 | -- | 3- 1-78 | +6,660 |
| Canyon Creek | -------do------- | Lat 33°53'25", 111°36'40", in sec.2, T.6 N., R.7 E. (unsurveyed), Maricopa County, in Tonto National Forest, 0.1 mi upstream from the mouth of Canyon Creek, near Carefree. | 9.2 | -- | 3- 1-78 | +700E |

See footnote at end of the table.

Discharge measurements made at miscellaneous sites during water year 1978--Continued

| Stream | Tributary to | Location | Drainage area (sq mi) | Measured previously (water years) | Measurements | |
|---|---|---|---|---|---|---|
| | | | | | Date | Discharge (cfs) |
| | | Gila River basin--Continued | | | | |
| Alder Creek | Verde River | Lat 33°51'50", long 111°34'28", in sec.13, T.6 N., R.7 E. (unsurveyed), Maricopa County, 6.2 mi west of Sunflower. | 11.3 | -- | 3- 1-78 | +1,430 |
| Camp Creek | -------do------- | Lat 33°46'56", long 111°40'33", in NW¼ sec.18, T.5 N., R.7 E., Maricopa County, 1 mi upstream from the mouth 3.6 mi southwest of Bartlett Dam. | 48.3 | -- | 3- 1-78 | +1,160 |
| Gila River | Colorado River | Lat 33°01'03", long 113°08'25", in NW¼SW¼SE¼ sec.1, T.5 S., R.9 W., Maricopa County, about 10 mi below Painted Rock Dam at Hansen Ranch crossing. | -- | -- | 3-16-78<br>6- 5-78<br>6-29-78<br>8- 8-78 | 137<br>161<br>216<br>248 |
| Do---------- | -------do------- | Lat 32°57'41", long 113°18'27", in SW¼NE¼SE¼ sec.29, T.5 S., R.10 W., Maricopa County, about 21 mi below Painted Rock Dam, 2.5 mi south of Agua Caliente. | -- | -- | 5-19-78<br>6- 5-78<br>6-29-78<br>8- 8-78 | 13.8<br>105<br>112<br>218 |
| Do---------- | -------do------- | Lat 32°52'28", long 113°30'33", in SE¼NE¼SE¼ sec.25, T.6 S., R.13 W., Yuma County, about 36 mi below Painted Rock Dam, near Dateland. | -- | -- | 5-19-78<br>6- 6-78<br>6-30-78<br>8- 9-78 | .47<br>29.8<br>17.7<br>35.0 |

E Discharge estimated.

## GILA RIVER BASIN

### Blue River and tributaries low-flow and water-quality investigations

A series of low-flow discharge measurements and chemical-quality samples were collected on the Blue River and tributaries in cooperation with the Arizona Water Commission, during the period June 13-30, 1978. The data collected in this series of measurements will provide a basis for determining the chemical quality of the low flow in various parts of the Blue River basin.

The measurements are listed in order proceeding downstream, and each tributary is inserted in the order in which it enters the mainstream.

| STATION NUMBER | STATION NAME | DATE OF SAMPLE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) |
|---|---|---|---|---|---|---|
| 334445109121300 | CAMPBELL BLUE CREEK AT USFS GAGING STATION | 78-06-26 | 1640 | .10 | 130 | -- |
| 334416109065000 | CAMPBELL BLUE CREEK AT LUCE RANCH NR BLUE AZ | 78-06-14 | 1100 | 1.0 | 205 | -- |
| 334410109040800 | TURKEY CREEK ABV CAMPBELL BLUE CREEK NR BLUE AZ | 78-06-14 | 1030 | .10 | 410 | -- |
| 334313109023800 | CAMPBELL BLUE CREEK AT STATE LINE NR BLUE AZ | 78-06-13 | 0910 | 1.2 | 243 | -- |
| 334311109023300 | DRY BLUE CREEK AT STATE LINE NR BLUE AZ | 78-06-13 | 1000 | 1.0 | 358 | -- |
| 334136109042100 | BLUE RIVER AT UPPER BLUE CAMPGROUND NR BLUE AZ | 78-06-13 | 1255 | 1.8 | 248 | -- |
| 333738109054800 | BLUE RIVER AT BEAVERHEAD RD CROSSING NR BLUE AZ | 78-06-13 | 1615 | 1.4 | 340 | -- |
| 333525109082300 | BLUE RIVER BLW LANPHIER CANYON NR BLUE AZ | 78-06-14 | 1300 | .50 | 355 | -- |
| 333258109115200 | BLUE RIVER AT THE BOX NR BLUE AZ | 78-06-14 | 1410 | 2.7 | 355 | -- |
| 333154109121700 | KP CREEK ABV BLUE RIVER NR BLUE AZ | 78-06-14 | 1500 | .23 | 255 | -- |
| 332936109123600 | BLUE RIVER BLW TORNADO CANYON NR BLUE AZ | 78-06-14 | 1615 | 1.8 | 360 | -- |
| 332902109121700 | STRAYHORSE CREEK ABV BLUE RIVER NR BLUE AZ | 78-06-15 | 0700 | .20 | 670 | -- |
| 332733109104700 | LANDRUN SPRING CANYON ABV BLUE R NR BLUE AZ | 78-06-15 | 0900 | .20 | 370 | -- |
| 332649109104900 | BLUE RIVER ABOVE OAK CREEK NR BLUE AZ | 78-06-15 | 0930 | .37 | 550 | -- |
| 332458109111300 | BLUE RIVER AT HU BAR RANCH NR BLUE AZ | 78-06-15 | 1130 | 1.9 | 600 | -- |
| 332057109105500 | BLUE RIVER AT MOUTH OF HORSE CANYON NR BLUE AZ | 78-06-15 | 1630 | 3.8 | 510 | -- |
| 331745109113000 | BLUE RIVER ABV GAGING STATION NR CLIFTON AZ | 78-06-16 | 0930 | 5.5 | 530 | -- |
| 331613109113800 | BLUE RIVER ABV PIGEON CREEK NR CLIFTON AZ | 78-06-16 | 1420 | 4.4 | 530 | -- |
| 331321109120700 | BLUE RIVER ABV PAT CREEK NR CLIFTON AZ | 78-06-17 | 1305 | 4.0 | 505 | -- |
| 331232109113201 | BLUE R AT MOUTH NR CLIFTON AZ | 78-05-30 | 1000 | 7.1 | 503 | 8.2 |

| DATE OF SAMPLE | TEMPER-ATURE (DEG C) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | BICAR-BONATE (MG/L AS HCO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 78-06-26 | 21.0 | 76 | 11 | 16 | 8.8 | 4.2 | .2 | .9 | 80 | 12 | 1.7 | .1 |
| 78-06-14 | 22.0 | 100 | 0 | 26 | 8.5 | 12 | .5 | 1.0 | 130 | 8.2 | 1.9 | .2 |
| 78-06-14 | 19.0 | 160 | 0 | 45 | 11 | 39 | 1.4 | 1.1 | 250 | 17 | 3.4 | .4 |
| 78-06-13 | 15.0 | 150 | 0 | 41 | 11 | 16 | .6 | .7 | 180 | 14 | 2.6 | .2 |
| 78-06-13 | 17.0 | 170 | 0 | 51 | 9.6 | 17 | .6 | .8 | 220 | 12 | 3.2 | .2 |
| 78-06-13 | 16.0 | 150 | 0 | 44 | 10 | 11 | .4 | .7 | 190 | 14 | 2.8 | .2 |
| 78-06-13 | 22.0 | 160 | 0 | 46 | 11 | 20 | .7 | .8 | 210 | 15 | 3.1 | .2 |
| 78-06-14 | 30.0 | 160 | 0 | 44 | 13 | 21 | .7 | 1.2 | 200 | 21 | 3.4 | .3 |
| 78-06-14 | 25.0 | 180 | 3 | 47 | 14 | 16 | .5 | 1.2 | 210 | 20 | 3.1 | .2 |
| 78-06-14 | -- | 130 | 14 | 30 | 13 | 9.0 | .3 | .9 | 140 | 15 | 2.1 | .1 |
| 78-06-14 | 20.0 | 170 | 17 | 46 | 14 | 16 | .5 | 1.1 | 190 | 22 | 6.8 | .2 |
| 78-06-15 | -- | 230 | 33 | 59 | 20 | 65 | 1.9 | 1.6 | 240 | 42 | 86 | .2 |
| 78-06-15 | 17.0 | 190 | 0 | 48 | 16 | 17 | .5 | 2.6 | 240 | 5.8 | 3.8 | .3 |
| 78-06-15 | -- | 200 | 51 | 53 | 16 | 54 | 1.7 | 1.9 | 180 | 22 | 97 | .2 |
| 78-06-15 | 24.0 | 210 | 56 | 60 | 15 | 52 | 1.6 | 1.8 | 190 | 25 | 92 | .2 |
| 78-06-15 | 18.0 | 190 | 34 | 53 | 14 | 41 | 1.3 | 2.0 | 190 | 31 | 59 | .3 |
| 78-06-16 | 17.0 | 210 | 48 | 60 | 15 | 37 | 1.1 | 2.2 | 200 | 32 | 57 | .3 |
| 78-06-16 | 28.0 | 200 | 39 | 55 | 16 | 39 | 1.2 | 2.5 | 200 | 33 | 58 | .3 |
| 78-06-17 | 26.0 | 200 | 34 | 53 | 16 | 35 | 1.1 | 3.0 | 200 | 31 | 51 | .3 |
| 78-05-30 | 21.0 | 200 | 33 | 54 | 15 | 35 | 1.1 | 2.7 | 200 | 31 | 46 | .3 |

LOW-FLOW INVESTIGATIONS

GILA RIVER BASIN

Blue River and tributaries low-flow and water-quality investigations--Continued

| DATE OF SAMPLE | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER AC-FT) | BORON, DIS-SOLVED (UG/L AS B) | IRON, DIS-SOLVED (UG/L AS FE) |
|---|---|---|---|---|---|---|
| 78-06-26 | 23 | 107 | 106 | .15 | 10 | 120 |
| 78-06-14 | 31 | 128 | 153 | .17 | 10 | 30 |
| 78-06-14 | 39 | 270 | 279 | .37 | 20 | 30 |
| 78-06-13 | 30 | 190 | 204 | .26 | 20 | 0 |
| 78-06-13 | 30 | 218 | 232 | .30 | 10 | 10 |
| 78-06-13 | 30 | 199 | 207 | .27 | 20 | 40 |
| 78-06-13 | 31 | 214 | 231 | .29 | 20 | 10 |
| 78-06-14 | 33 | 218 | 236 | .30 | 20 | 10 |
| 78-06-14 | 34 | 223 | 239 | .30 | 20 | 20 |
| 78-06-14 | 38 | 168 | 177 | .23 | 10 | 50 |
| 78-06-14 | 36 | 229 | 236 | .31 | 20 | 30 |
| 78-06-15 | 40 | 427 | 432 | .58 | 40 | 60 |
| 78-06-15 | 53 | 250 | 265 | .34 | 20 | 20 |
| 78-06-15 | 36 | 386 | 369 | .53 | 40 | 30 |
| 78-06-15 | 35 | 370 | 375 | .50 | 30 | 40 |
| 78-06-15 | 35 | 316 | 329 | .43 | 30 | 20 |
| 78-06-16 | 35 | 325 | 337 | .44 | 30 | 20 |
| 78-06-16 | 36 | 326 | 339 | .44 | 30 | 30 |
| 78-06-17 | 36 | 313 | 324 | .43 | 30 | 20 |
| 78-05-30 | 35 | 303 | 318 | .41 | 20 | 50 |

GILA RIVER BASIN

San Francisco River and tributaries low-flow and water-quality investigations

A series of low-flow discharge measurements and chemical-quality samples were collected on the San Francisco River and tributaries in cooperation with the Arizona Water Commission, during the period May 29-June 6, 1978. The data collected in this series of measurements will provide a basis for determining the chemical quality of the low flow in various parts of the San Francisco River basin.

The measurements are listed in order proceeding downstream, and each tributary is inserted in the order in which it enters the mainstream.

| STATION NUMBER | STATION NAME | DATE OF SAMPLE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) |
|---|---|---|---|---|---|---|
| 331425109024701 | SAN FRANCISCO R AT STAE LINE NR CLIFTON AZ | 78-05-29 | 1600 | 52 | 310 | -- |
| 331403109061501 | SAN FRANCISCO R BLW INDIAN CREEK NR CLIFTON AZ | 78-05-29 | 1450 | 52 | 380 | -- |
| 331155109082001 | SAN FRANCISCO R AT HARDEN CIENEGA NR CLIFTON AZ | 78-05-29 | 2000 | 54 | 402 | -- |
| 331110109092300 | DIX CREEK ABOVE SAN FRANCISCO R NR CLIFTON AZ | 78-05-30 | 1515 | .14 | 260 | -- |
| 331235109112801 | SAN FRANCISCO R ABV BLUE R NR CLIFTON AZ | 78-05-30 | 1000 | 54 | 438 | -- |
| 331232109113201 | BLUE R AT MOUTH NR CLIFTON AZ | 78-05-30 | 1000 | 7.1 | 503 | 8.2 |
| 331222109112901 | SAN FRANCISCO R BLW BLUE R NR CLIFTON AZ | 78-05-30 | 1200 | 60 | 445 | -- |
| 331114109133201 | SAN FRANCISCO R AT KIEHNE RANCH NR CLIFTON AZ | 78-05-31 | 1150 | 57 | 340 | -- |
| 330954109155701 | SAN FRANCISCO R BLW SANTA CRUZ CAN NR CLIFTON AZ | 78-05-31 | 1440 | 57 | 480 | 8.3 |
| 330748109171001 | SAN FRANCISCO R BLW SYCAMORE GULCH NR CLIFTON AZ | 78-05-31 | 1640 | 58 | 480 | -- |
| 330544109182201 | SAN FRANCISCO R ABV PUMPING STA NR CLIFTON AZ | 78-05-31 | 1600 | 57 | 490 | -- |
| 330450109181601 | SAN FRANCISCO ABV LIMESTONE GULCH NR CLIFTON AZ | 78-06-06 | 1100 | 40 | 520 | -- |
| 330415109175201 | SAN FRANCISCO AT LIMESTONE GULCH NR CLIFTON AZ | 78-06-06 | 1225 | 40 | 810 | -- |
| 330243109174501 | SAN FRANCISCO R ABV WARDS CANYON AT CLIFTON AZ | 78-06-01 | 1245 | 58 | 900 | -- |
| 330031109194001 | SAN FRANCISCO R BLW MORENCI GULCH NR CLIFTON AZ | 78-06-01 | 1615 | 53 | 1261 | 8.3 |
| 325858109215801 | SAN FRANCISCO R ABV GILA R NR CLIFTON AZ | 78-06-01 | 1840 | 56 | 1529 | 8.4 |

| DATE OF SAMPLE | TEMPER-ATURE (DEG C) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | BICAR-BONATE (MG/L AS HCO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 78-05-29 | 27.0 | 100 | 0 | 31 | 6.6 | 45 | 1.9 | 3.7 | 140 | 23 | 46 | .9 |
| 78-05-29 | 26.0 | 110 | 0 | 33 | 7.4 | 46 | 1.9 | 4.2 | 150 | 23 | 46 | .9 |
| 78-05-29 | 24.0 | 120 | 0 | 35 | 7.8 | 46 | 1.8 | 3.8 | 150 | 23 | 54 | .9 |
| 78-05-30 | 24.0 | 140 | 0 | 32 | 14 | 16 | .6 | 3.1 | 180 | 6.0 | 6.1 | .4 |
| 78-05-30 | 20.0 | 120 | 0 | 36 | 7.7 | 49 | 1.9 | 3.9 | 150 | 23 | 57 | .9 |
| 78-05-30 | 21.0 | 200 | 33 | 54 | 15 | 35 | 1.1 | 2.7 | 200 | 31 | 46 | .3 |
| 78-05-30 | 24.0 | 130 | 0 | 37 | 8.3 | 48 | 1.9 | 3.8 | 160 | 24 | 56 | .8 |
| 78-05-31 | 24.0 | 140 | 5 | 39 | 9.5 | 45 | 1.7 | 3.8 | 160 | 24 | 54 | .8 |
| 78-05-31 | 25.0 | 140 | 4 | 41 | 10 | 45 | 1.6 | 3.9 | 170 | 25 | 56 | .8 |
| 78-05-31 | 25.0 | 150 | 11 | 42 | 11 | 46 | 1.6 | 4.0 | 170 | 26 | 56 | .8 |
| 78-05-31 | 25.0 | 150 | 3 | 42 | 11 | 47 | 1.7 | 4.1 | 180 | 27 | 56 | .8 |
| 78-06-06 | 20.0 | 160 | 12 | 44 | 12 | 47 | 1.6 | 4.0 | 180 | 28 | 59 | .8 |
| 78-06-06 | 24.0 | 190 | 39 | 55 | 12 | 97 | 3.1 | 7.4 | 180 | 29 | 160 | .9 |
| 78-06-01 | 27.0 | 240 | 89 | 75 | 12 | 160 | 4.5 | 11 | 180 | 29 | 290 | .9 |
| 78-06-01 | 28.0 | 300 | 150 | 99 | 13 | 200 | 5.0 | 14 | 180 | 40 | 380 | 1.0 |
| 78-06-01 | 24.0 | 290 | 150 | 91 | 16 | 200 | 5.1 | 13 | 180 | 56 | 380 | .9 |

San Francisco River and tributaries low-flow and water-quality investigations--Continued

MULTIPLE STATION LISTING

| DATE OF SAMPLE | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER AC-FT) | BORON, DIS-SOLVED (UG/L AS B) | IRON, DIS-SOLVED (UG/L AS FE) |
|---|---|---|---|---|---|---|
| 78-05-29 | 37 | 256 | 263 | .35 | 50 | 80 |
| 78-05-29 | 38 | 265 | 273 | .36 | 50 | 110 |
| 78-05-29 | 38 | 272 | 283 | .37 | 50 | 120 |
| 78-05-30 | 60 | 215 | 226 | .29 | 20 | 20 |
| 78-05-30 | 38 | 289 | 290 | .39 | 50 | 70 |
| 78-05-30 | 35 | 303 | 318 | .41 | 20 | 50 |
| 78-05-30 | 38 | 278 | 295 | .38 | 40 | 90 |
| 78-05-31 | 38 | 286 | 293 | .39 | 40 | 40 |
| 78-05-31 | 38 | 296 | 304 | .40 | 40 | 10 |
| 78-05-31 | 38 | 298 | 308 | .41 | 40 | 50 |
| 78-05-31 | 39 | 300 | 316 | .41 | 40 | 20 |
| 78-06-06 | 39 | 317 | 323 | .43 | 50 | 20 |
| 78-06-06 | 40 | 477 | 490 | .65 | 70 | 20 |
| 78-06-01 | 39 | 746 | 706 | 1.01 | 90 | 50 |
| 78-06-01 | 39 | 912 | 876 | 1.24 | 110 | 50 |
| 78-06-01 | 39 | 915 | 885 | 1.24 | 110 | 30 |

LITTLE COLORADO RIVER BASIN

09386030 LITTLE COLORADO RIVER ABOVE ZION RESERVOIR NEAR ST. JOHNS, AZ
(LAT 34°35'01", LONG 109°24'23")

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MAY | | | | | | | | | | | | |
| 11... | 1145 | 1.8 | 4100 | 8.5 | 19.0 | 980 | 650 | 210 | 110 | 660 | 9.2 | 26 |
| SEP | | | | | | | | | | | | |
| 13... | 1720 | .10 | 4500 | 8.0 | 23.5 | 1300 | 1000 | 320 | 110 | 490 | 6.0 | 15 |

| DATE | BICAR-BONATE (MG/L AS HCO3) | CAR-BONATE (MG/L AS CO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER AC-FT) | NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) | BORON, DIS-SOLVED (UG/L AS B) | IRON, DIS-SOLVED (UG/L AS FE) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAY | | | | | | | | | | | |
| 11... | 400 | 1 | 1100 | 610 | 1.9 | 15 | 2930 | 4.01 | .08 | 1000 | 40 |
| SEP | | | | | | | | | | | |
| 13... | 260 | 0 | 1200 | 630 | 1.3 | 15 | 2910 | 4.23 | .01 | 550 | 20 |

09398500 CLEAR CREEK BELOW WILLOW CREEK, NEAR WINSLOW, AZ
(LAT 34°40'03", LONG 111°00'25")

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MAR | | | | | | | | | | | | |
| 03... | 1600 | 3700 | 50 | 7.2 | 3.5 | 32 | 10 | 6.9 | 3.5 | .7 | .1 | .9 |

| DATE | BICAR-BONATE (MG/L AS HCO3) | CAR-BONATE (MG/L AS CO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER AC-FT) | NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) | BORON, DIS-SOLVED (UG/L AS B) | IRON, DIS-SOLVED (UG/L AS FE) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAR | | | | | | | | | | | |
| 03... | 27 | 0 | 7.4 | 1.5 | .1 | 4.3 | 39 | .06 | .04 | 50 | 120 |

LITTLE COLORADO RIVER BASIN

342453109241000 LITTLE COLORADO RIVER ABOVE SALADO SPRINGS NEAR ST. JOHNS, AZ
(LAT 34°24'53", LONG 109°24'10")

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MAY 10... | 1715 | 3.7 | 1650 | 8.0 | 19.0 | 500 | 210 | 130 | 42 | 190 | 3.7 | 12 |
| SEP 13... | 1010 | 3.4 | 1120 | 8.0 | 17.5 | 330 | 55 | 86 | 29 | 120 | 2.9 | 8.7 |

| DATE | BICAR-BONATE (MG/L AS HCO3) | CAR-BONATE (MG/L AS CO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER AC-FT) | NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) | BORON, DIS-SOLVED (UG/L AS B) | IRON, DIS-SOLVED (UG/L AS FE) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAY 10... | 350 | 0 | 290 | 180 | 1.5 | 16 | 1030 | 1.43 | .06 | 310 | 30 |
| SEP 13... | 340 | 0 | 160 | 96 | 1.1 | 18 | 687 | .94 | .01 | 240 | 50 |

342600109224000 LITTLE COLORADO RIVER BELOW SALADO SPRINGS NEAR ST. JOHNS, AZ
(LAT 34°26'00", LONG 109°22'40")

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MAY 10... | 1830 | 8.4 | 2500 | 8.0 | 20.0 | 580 | 250 | 140 | 55 | 330 | 6.0 | 23 |
| SEP 13... | 1205 | 8.3 | 2400 | 7.7 | 19.0 | 630 | 270 | 180 | 44 | 270 | 4.7 | 22 |

| DATE | BICAR-BONATE (MG/L AS HCO3) | CAR-BONATE (MG/L AS CO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER AC-FT) | NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) | BORON, DIS-SOLVED (UG/L AS B) | IRON, DIS-SOLVED (UG/L AS FE) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAY 10... | 400 | 0 | 540 | 350 | 2.0 | 16 | 1650 | 2.31 | .02 | 580 | 0 |
| SEP 13... | 440 | 0 | 440 | 280 | 1.7 | 18 | 1470 | 2.03 | .04 | 490 | 20 |

BILL WILLIAMS RIVER BASIN

09424470 KIRKLAND CREEK NEAR KIRKLAND, AZ
(LAT 34°23'38", LONG 112°43'19")

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | HARDNESS (MG/L AS CACO3) | HARDNESS, NONCARBONATE (MG/L CACO3) | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) | SODIUM ADSORPTION RATIO | POTASSIUM, DISSOLVED (MG/L AS K) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| AUG 03... | 1100 | 448 | 7.7 | 27.0 | 200 | 6 | 55 | 14 | 18 | .6 | 4.3 |

| DATE | BICARBONATE (MG/L AS HCO3) | CARBONATE (MG/L AS CO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | SOLIDS, DISSOLVED (TONS PER AC-FT) | PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P) | ARSENIC DISSOLVED (UG/L AS AS) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| AUG 03... | 230 | 0 | 16 | 17 | .2 | 40 | 286 | 280 | .39 | .15 | 3 |

| DATE | BORON, DISSOLVED (UG/L AS B) | CADMIUM DISSOLVED (UG/L AS CD) | CHROMIUM, HEXAVALENT, DIS. (UG/L AS CR) | COBALT, DISSOLVED (UG/L AS CO) | COPPER, DISSOLVED (UG/L AS CU) | IRON, DISSOLVED (UG/L AS FE) | LEAD, DISSOLVED (UG/L AS PB) | MERCURY DISSOLVED (UG/L AS HG) | MOLYBDENUM, DISSOLVED (UG/L AS MO) | SELENIUM, DISSOLVED (UG/L AS SE) | ZINC, DISSOLVED (UG/L AS ZN) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| AUG 03... | 40 | <1 | 0 | 2 | 7 | <10 | 0 | .0 | 2 | 0 | 5 |

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES
WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

GILA RIVER BASIN

09470500 SAN PEDRO RIVER AT PALOMINAS, AZ
(LAT 31°22'48", LONG 110°06'38")

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | TUR-BID-ITY (NTU) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 10... | 1620 | 1320 | 670 | 7.9 | 21.5 | 3000 | 320 | 230 | 110 | 10 | 17 | .4 |

| DATE | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | BICAR-BONATE (MG/L AS HCO3) | CAR-BONATE (MG/L AS CO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER AC-FT) | BORON, DIS-SOLVED (UG/L AS B) | IRON, DIS-SOLVED (UG/L AS FE) | MANGA-NESE, DIS-SOLVED (UG/L AS MN) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 10... | 3.3 | 110 | 0 | 250 | 3.0 | .3 | 9.8 | 458 | .62 | 30 | 60 | 10 |

09471550 SAN PEDRO RIVER NEAR TOMBSTONE, AZ
(LAT 31°45'03", LONG 110°12'02")

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | TUR-BID-ITY (NTU) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 13... | 1400 | 256 | 760 | 8.2 | 22.0 | 450 | 350 | 260 |
| MAR | | | | | | | | |
| 05... | 1600 | 65 | 2100 | 7.7 | 14.0 | -- | 1100 | 1000 |

| DATE | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | BICAR-BONATE (MG/L AS HCO3) | CAR-BONATE (MG/L AS CO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 13... | 120 | 13 | 25 | .6 | 3.8 | 110 | 0 | 300 | 6.5 |
| MAR | | | | | | | | | |
| 05... | 410 | 27 | 30 | .4 | 4.8 | 170 | 0 | 360 | 10 |

| DATE | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER AC-FT) | BORON, DIS-SOLVED (UG/L AS B) | IRON, TOTAL RECOV-ERABLE (UG/L AS FE) | IRON, DIS-SOLVED (UG/L AS FE) | MANGA-NESE, DIS-SOLVED (UG/L AS MN) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 13... | .4 | 14 | 537 | .73 | 50 | -- | 50 | 0 |
| MAR | | | | | | | | |
| 05... | -- | -- | -- | -- | 70 | 220000 | 270 | 3500 |

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES
WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

GILA RIVER BASIN

09473000 ARAVAIPA CREEK NEAR MAMMOTH, AZ
(LAT 32°50'37", LONG 110°37'07")

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 03... | 1230 | 3.2 | 470 | 7.8 | 3.2 | 180 | 0 | 56 | 10 | 32 | 1.0 | 4.9 |
| MAR | | | | | | | | | | | | |
| 03... | 1545 | 1100 | 345 | 8.0 | 12.0 | 150 | 46 | 49 | 7.3 | 9.8 | .3 | 3.9 |

| DATE | BICAR-BONATE (MG/L AS HCO3) | CAR-BONATE (MG/L AS CO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER AC-FT) | BORON, DIS-SOLVED (UG/L AS B) | IRON, DIS-SOLVED (UG/L AS FE) | MANGA-NESE, DIS-SOLVED (UG/L AS MN) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 03... | 250 | 0 | 34 | 9.6 | 1.0 | 35 | 306 | .42 | 40 | 40 | 10 |
| MAR | | | | | | | | | | | |
| 03... | 130 | 0 | 54 | 4.7 | -- | -- | -- | -- | 50 | 170 | 20 |

09502800 WILLIAMSON VALLEY WASH NEAR PAULDEN, AZ
(LAT 34°52'00", LONG 112°36'45")

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAR | | | | | | | | | | | |
| 02... | 1100 | 2200 | 110 | 7.0 | 8.0 | 55 | 0 | 16 | 3.7 | 3.9 | .2 |

| DATE | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | BICAR-BONATE (MG/L AS HCO3) | CAR-BONATE (MG/L AS CO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER AC-FT) | BORON, DIS-SOLVED (UG/L AS B) | IRON, DIS-SOLVED (UG/L AS FE) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAR | | | | | | | | | | | |
| 02... | 2.0 | 71 | 0 | 6.0 | 4.4 | .2 | 11 | 82 | .12 | 60 | 50 |

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES
WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

GILA RIVER BASIN

09503700 VERDE RIVER NEAR PAULDEN, AZ
(LAT 34°53'40", LONG 112°20'32")

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAR 01... | 1745 | 7520 | 140 | 7.9 | 9.0 | 88 | 0 | 27 | 5.1 | 5.6 | .3 |

| DATE | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | BICAR-BONATE (MG/L AS HCO3) | CAR-BONATE (MG/L AS CO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER AC-FT) | BORON, DIS-SOLVED (UG/L AS B) | IRON, DIS-SOLVED (UG/L AS FE) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAR 01... | 3.4 | 110 | 0 | 6.1 | 3.0 | .3 | .2 | 105 | .14 | 50 | 60 |

09505300 RATTLESNAKE CANYON NEAR RIMROCK, AZ
(LAT 34°46'01", LONG 111°40'23")

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO |
|---|---|---|---|---|---|---|---|---|---|---|---|
| FEB 28... | 1330 | 525 | 55 | 6.8 | .5 | 36 | 11 | 9.0 | 3.2 | 4.1 | .3 |

| DATE | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | BICAR-BONATE (MG/L AS HCO3) | CAR-BONATE (MG/L AS CO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER AC-FT) | BORON, DIS-SOLVED (UG/L AS B) | IRON, DIS-SOLVED (UG/L AS FE) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| FEB 28... | 1.1 | 30 | 0 | 3.4 | .9 | .1 | .3 | 37 | .07 | 30 | 150 |

GILA RIVER BASIN

09505350 DRY BEAVER CREEK NEAR RIMROCK, AZ
(LAT 34°43'43", LONG 111°46'30")

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAR 02... | 1730 | 5700 | 50 | 7.5 | 7.0 | 30 | 0 | 8.2 | 2.2 | 1.1 | .1 |

| DATE | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | BICAR-BONATE (MG/L AS HCO3) | CAR-BONATE (MG/L AS CO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER AC-FT) | BORON, DIS-SOLVED (UG/L AS B) | IRON, DIS-SOLVED (UG/L AS FE) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAR 02... | 1.1 | 37 | 0 | 4.1 | 1.3 | .1 | 5.7 | 42 | .07 | 40 | 90 |

09505550 VERDE RIVER BELOW CAMP VERDE, AZ
(LAT 34°33'02", LONG 111°51'02")

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO |
|---|---|---|---|---|---|---|---|---|---|---|---|
| FEB 28... | 1630 | 8310 | 128 | 7.9 | 7.0 | 71 | 0 | 19 | 5.8 | 4.1 | .2 |

| DATE | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | BICAR-BONATE (MG/L AS HCO3) | CAR-BONATE (MG/L AS CO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER AC-FT) | BORON, DIS-SOLVED (UG/L AS B) | IRON, DIS-SOLVED (UG/L AS FE) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| FEB 28... | 1.5 | 98 | 0 | 5.6 | 5.3 | .1 | 10 | 100 | .16 | 70 | 110 |

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES
WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

GILA RIVER BASIN

09505800 WEST CLEAR CREEK NEAR CAMP VERDE, AZ
(LAT 34°32'19", LONG 111°41'36")

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAR 02... | 1400 | 2670 | 65 | 7.4 | 6.5 | 37 | 3 | 9.2 | 3.4 | 1.1 | .1 |

| DATE | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | BICAR-BONATE (MG/L AS HCO3) | CAR-BONATE (MG/L AS CO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER AC-FT) | BORON, DIS-SOLVED (UG/L AS B) | IRON, DIS-SOLVED (UG/L AS FE) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAR 02... | 1.3 | 41 | 0 | 3.8 | 2.5 | .1 | 9.1 | 51 | .09 | 50 | 140 |

323345110505400 CANADA DEL ORO 1.0 MILE ABOVE GOLDER DAM, AZ
(LAT 32°33'45", LONG 110°50'54")

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MAR 08... | 1145 | 104 | 200 | 7.9 | 10.0 | 75 | 30 | 20 | 6.2 | 11 | .6 | 1.5 |

| DATE | BICAR-BONATE (MG/L AS HCO3) | CAR-BONATE (MG/L AS CO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER AC-FT) | BORON, DIS-SOLVED (UG/L AS B) | IRON, DIS-SOLVED (UG/L AS FE) | MANGA-NESE, DIS-SOLVED (UG/L AS MN) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAR 08... | 56 | 0 | 40 | 5.9 | .3 | 20 | 133 | .18 | 30 | 40 | 0 |

GILA RIVER BASIN

341420112325300 HASSAYAMPA RIVER AT MOUTH OF MILK CREEK, AZ
(LAT 34°14'20", LONG 112°32'53")

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO |
|---|---|---|---|---|---|---|---|---|---|---|---|
| APR 27... | 1430 | 40 | 480 | 7.4 | 23.0 | 220 | 32 | 57 | 19 | 23 | .7 |

| DATE | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | BICAR-BONATE (MG/L AS HCO3) | CAR-BONATE (MG/L AS CO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER AC-FT) | BORON, DIS-SOLVED (UG/L AS B) | IRON, DIS-SOLVED (UG/L AS FE) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| APR 27... | 1.5 | 230 | 0 | 57 | 14 | .4 | 24 | 309 | .41 | 130 | 0 |

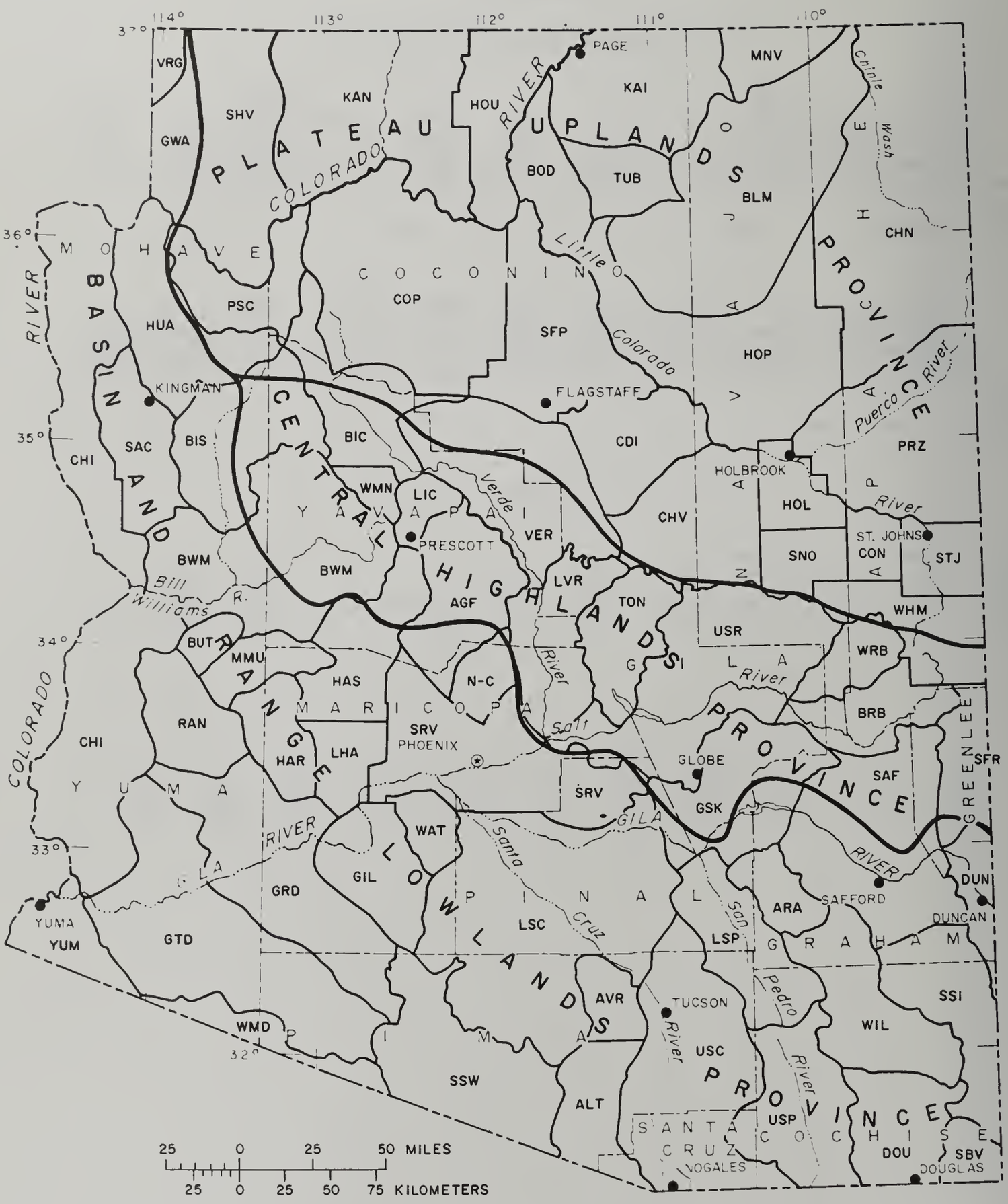


FIGURE 8.--INDEX MAP OF GROUND-WATER AREAS IN ARIZONA.

# AREAS AND ABBREVIATIONS

AGF = Agua Fria basin
ALT = Altar Valley
ARA = Aravaipa Valley
AVR = Avra Valley
BIC = Big Chino Valley
BIS = Big Sandy Valley
BWM = Bill Williams
BLM = Black Mesa
BRB = Black River basin
BOD = Bodaway Mesa
BUT = Butler Valley
CDI = Canyon Diablo
CHV = Chevelon
CHN = Chinle
COP = Coconino Plateau
CHI = Colorado River, Hoover Dam to Imperial Dam
CON = Concho
DOU = Douglas basin
DUN = Duncan basin
GIL = Gila Bend basin
GRD = Gila River from Painted Rock Dam to Texas Hill
GSK = Gila River from head of San Carlos Reservoir to Kelvin
GTD = Gila River from Texas Hill to Dome
GWA = Grand Wash
HAR = Harquahala Plains
HAS = Hassayampa basin
HOL = Holbrook
HOP = Hopi
HOU = House Rock
HUA = Hualapai Valley
KAI = Kaibito
KAN = Kanab
LIC = Little Chino Valley
LHA = Lower Hassayampa
LSP = Lower San Pedro basin
LSC = Lower Santa Cruz basin
LVR = Lower Verde River
MMU = McMullen Valley
MNV = Monument Valley
N-C = New River-Cave Creek
PSC = Peach Springs Canyon
PRZ = Puerco-Zuni
RAN = Ranegras Plain
SAC = Sacramento Valley
SAF = Safford basin
SRV = Salt River Valley
SBV = San Bernardino Valley
SFP = San Francisco Peaks
SFR = San Francisco River basin
SSI = San Simon basin
SSW = San Simon Wash
SHV = Shivwits
SNO = Snowflake
STJ = St. Johns
TON = Tonto basin
TUB = Tuba City
USR = Upper Salt River basin
USP = Upper San Pedro basin
USC = Upper Santa Cruz basin
VER = Upper Verde River
VRG = Virgin River
WAT = Waterman Wash
WMD = Western Mexican drainage
WHM = White Mountains
WRB = White River basin
WIL = Willcox basin
WMN = Williamson Valley
YUM = Yuma

| LATITUDE-LONGITUDE (HYDROLOGIC UNIT) | LOCAL WELL NUMBER | DEPTH OF WELL (feet) | LAND-SURFACE ALTITUDE (feet, NGVD[a]) | TYPE OF WELL | RECORDS AVAILABLE (years) | WATER LEVEL, IN FEET BELOW LAND SURFACE | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Highest | Date | Lowest | Date | 1978 | Date |
| AGUA FRIA BASIN | | | | | | | | | | | |
| 343157N1121354.1 (15070102) | (A-13-1)2cac | 200 | 4,590 | Stock | 1973-78 | 84.8 | 2- 6-74 | 89.5 | 1- 7-76 | 89.0 | 3-14 |
| ALTAR VALLEY | | | | | | | | | | | |
| 312950N1113346.1 (15080200) | (D-22-8)19dbc | 160 | 3,610 | Domestic, Stock | 1950-61, 1963-66, 1968-78 | 91.2 | 10-18-50 | 100.2 | 1- 2-78 | 100.2 | 1- 2 |
| ARAVAIPA VALLEY | | | | | | | | | | | |
| 324413N1091355.1 (15050203) | (D-8-21)18dad | 140 | 3,880 | Irrigation | 1955-57, 1959,1962, 1964-69, 1971-78 | 28.4 | 4-23-68 | 43.4 | 2- 2-77 | 38.7 | 2-22 |
| AVRA VALLEY | | | | | | | | | | | |
| 320852N1111500.1 (15050304) | (D-15-11)5ccd | 728 | 2,368.0 | Unused | 1953-57, 1959-60, 1962-78 | 281.1 | 3- 6-53 | 337.6 | 8-25-75 | 332.9 | 1- 2 |
| BIG CHINO VALLEY | | | | | | | | | | | |
| 345608N1123323.1 (15060201) | (B-18-3)23bbc | 61 | 4,420 | Unused | 1952-67, 1969-78 | 8.9 | 2-10-66 | 18.5 | 5-31-55 | 16.6 | 3-14 |
| BIG SANDY VALLEY | | | | | | | | | | | |
| 344040N1133510.1 (15030201) | (B-16-13)36cc | 15 | 1,880 | Domestic | 1945-78 | 9.7 | 1-12-45 | 13.6 | 10-20-56 | 11.4 | 2- 2 |
| BILL WILLIAMS | | | | | | | | | | | |
| 341657N1124312.1 (15030203) | (B-11-4)19bcc | 47 | 4,454 | Unused | 1946, 1948-49, 1951-57, 1959-60, 1962-66, 1968-72, 1974-78 | 16.5 | 7- 3-46 | 32.1 | 2- 5-65 | 27.9 | 2-21 |
| 342822N1125312.1 (15030203) | (B-13-6)9dcd | 52 | 2,500 | Irrigation | 1945-49, 1951-57, 1959-78 | 14.0 | 1-17-45 | 19.9 | 4-26-61<br>1-19-77 | 16.1 | 2-22 |
| BLACK MESA | | | | | | | | | | | |
| 360055N1103040.1 (15020012) | 04 075-00.61x16.21 Navajo Indian Res. | 1,683 | 5,854 | Unused | 1972-78 | 323.9 | 2- 1-73 | 333.8 | 2-10-78 | 333.8 | 2-10 |
| BUTLER VALLEY | | | | | | | | | | | |
| 335823N1134715.1 (15030105) | (B-7-15)2dcc | 552 | 1,425 | Irrigation | 1967-76, 1978 | 148.3 | 2-16-72 | 158.1 | 2- 6-78 | 158.1 | 2- 6 |
| CANYON DIABLO | | | | | | | | | | | |
| 345750N1104828.1 (15020008) | (A-18-14)13abd3 | 293 | 5,160 | Observation | 1968-74, 1976-78 | 269.6 | 5-28-68 | 278.2 | 3- 9-78 | 278.2 | 3- 9 |

See footnote at end of table.

| LATITUDE-LONGITUDE (HYDROLOGIC UNIT) | LOCAL WELL NUMBER | DEPTH OF WELL (feet) | LAND-SURFACE ALTITUDE (feet, NGVD[a]) | TYPE OF WELL | RECORDS AVAILABLE (years) | WATER LEVEL, IN FEET BELOW LAND SURFACE | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Highest | Date | Lowest | Date | 1978 | Date |
| CHEVELON | | | | | | | | | | | |
| 345223N1105223.1 (15020008) | (A-17-14)17add | 600 | 5,540 | Stock | 1964,1968, 1970-71, 1974, 1977-78 | 405.7 | 4- 6-71 | 407.3 | 10-16-68 | 406.5 | 3-13 |
| CHINLE | | | | | | | | | | | |
| 361317N1093558.1 (14080204) | 10 071-05.55x01.98 Navajo Indian Res. | 200 | 5,425 | Observation | 1970-78 | 16.6 | 1-24-74 | 21.8 | 1-19-77 | 18.3 | 2- 8 |
| COLORADO RIVER, HOOVER DAM TO IMPERIAL DAM | | | | | | | | | | | |
| 333829N1141348.1 (15030106) | (B-4-19)33cca | | 917 | Domestic | 1974, 1976-78 | 28.0 | 9- 6-74 | 33.2 | 2- 3-76 | 28.1 | 2- 6 |
| CONCHO | | | | | | | | | | | |
| 342817N1093336.1 (15020002) | (A-12-26)2bda | 100 | 6,295 | Stock | 1975-78 | 68.3 | 5- 6-75 | 96.4 | 5-10-78 | 96.4<br>85.5 | 5-10<br>9-12 |
| 342555N1093216.1 (15020002) | (A-12-26)13dcd | 300 | 5,970 | Unused | 1975-78 | 45.2 | 4-14-76 | 51.4 | 9-12-78 | 46.2<br>51.4 | 5-10<br>9-12 |
| 343048N1094754.1 (15020002) | (A-13-24)22bbd | - | 5,740 | Stock | 1956, 1975-78 | 134.4 | 5-13-75 | 151.0 | 9-19-77 | 134.7<br>136.4 | 5-10<br>9-12 |
| 343226N1093131.1 (15020002) | (A-13-26)12dda | 75 | 6,105 | Stock | 1976-78 | 36.5 | 4-15-76 | 37.9 | 4- 7-77 | 37.6<br>37.9 | 5-11<br>9-14 |
| 343432N1095004.1 (15020002) | (A-14-24)29dcc | 335 | 5,640 | Stock | 1975-78 | 238.6 | 5-13-75 | 266.9 | 9-12-78 | 245.4<br>266.9 | 5-10<br>9-12 |
| 343716N1093857.1 (15020002) | (A-14-25)E12cdd3 | 630 | 5,420 | Irrigation | 1953-58, 1960-78 | 11.8 | 4- 6-60 | 32.6 | 1-11-77 | 29.8 | 2-23 |
| 343623N1094032.1 (15020002) | (A-14-25)14ccd | 350 | 5,600 | Stock | 1975-78 | 172.4 | 3- 5-75 | 215.6 | 9-14-78 | 197.7<br>215.6 | 5-12<br>9-14 |
| 343601N1093558.1 (15020002) | (A-14-26)21bcc | 345 | 5,475 | Stock | 1950, 1955, 1975-78 | 9.0 | 11- 1-50 | 36.8 | 9- 9-76 | 20.5<br>36.0 | 5-11<br>9-14 |
| DOUGLAS BASIN | | | | | | | | | | | |
| 315042N1094143.1 (15080301) | (D-18-26)28aaa2 | 390 | 4,268 | Irrigation | 1965-76, 1978 | 89.0 | 2-11-65 | 163.2 | 1-25-78 | 163.2 | 1-25 |
| 313826N1094023.1 (15080301) | (D-21-26)2baa | 110 | 4,130 | Unused | 1947-78 | 36.6 | 8-26-47 | 102.7 | 1-25-78 | 102.7 | 1-25 |
| 313550N1093920.1 (15080301) | (D-21-26)24baa | 196 | 4,195.8 | Domestic | 1946-58, 1960-62, 1964-78 | 112.0 | 1-31-46 | 183.1 | 1-25-78 | 183.1 | 1-25 |
| 312226N1093728.1 (15080301) | (D-24-27)5bdb | 82 | 4,000.2 | Stock | 1942, 1944-57, 1959-78 | 54.3 | 5-26-42 | 71.9 | 1-17-74 | 67.7 | 1-26 |
| DUNCAN BASIN | | | | | | | | | | | |
| 325114N1091058.1 (15040002) | (D-7-31)4bcc | 75 | 3,544.4 | Irrigation | 1939-43, 1945-78 | 21.9 | 2-19-68 | 41.0 | 8- 8-56 | 25.6 | 2-24 |
| GILA BEND BASIN | | | | | | | | | | | |
| 331333N1124430.1 (15070101) | (C-2-5)26cba | 1,000 | 756 | Irrigation | 1968-78 | 94.8 | 1-11-74 | 120.0 | 1-23-68 | 98.5 | 1-30 |
| 325907N1125430.1 (15070101) | (C-5-6)18ddd | 1,502 | 670 | Irrigation | 1966-78 | 35.7 | 1- 4-66 | 40.1 | 2-14-73 | 36.8 | 2- 9 |

See footnote at end of table.

| LATITUDE-LONGITUDE (HYDROLOGIC UNIT) | LOCAL WELL NUMBER | DEPTH OF WELL (feet) | LAND-SURFACE ALTITUDE (feet, NGVD[a]) | TYPE OF WELL | RECORDS AVAILABLE (years) | WATER LEVEL, IN FEET BELOW LAND SURFACE | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Highest | Date | Lowest | Date | 1978 | Date |
| GILA RIVER FROM PAINTED ROCK DAM TO TEXAS HILL | | | | | | | | | | | |
| 330607N1131619.1 (15070201) | (C-4-10)10aaa | 500 | 688 | Unused | 1957-78 | 198.4 | 2-14-57 | 251.9 | 1-12-78 | 251.9 | 1-12 |
| 325353N1133211.1 (15070201) | (C-6-12)19bba | 1,352 | 383 | Unused | 1971-78 | 29.2 | 1- 8-75 | 39.8 | 1- 2-73 | 32.0 | 1-27 |
| GILA RIVER FROM HEAD OF SAN CARLOS RESERVOIR TO KELVIN | | | | | | | | | | | |
| 332102N1102802.1 (15040007) | (D-1-18)11dcc | | 2,662 | Domestic | 1967-78 | 32.8 | 3-27-78 | 38.7 | 3- 2-67 | 32.8 | 3-27 |
| 330858N1104951.1 (15050100) | (D-3-15)29aba | 300 | 2,740 | Irrigation | 1952-78 | 81.6 | 2-25-60 | 102.2 | 9-11-57 | 99.6 | 1-23 |
| 330416N1105533.1 (15050100) | (D-4-14)21bcd | 80 | 1,790 | Unused | 1952-55, 1957-64, 1966-78 | 5.0 | 1-23-78 | 8.3 | 12- 8-53 | 5.0 | 1-23 |
| GILA RIVER FROM TEXAS HILL TO DOME | | | | | | | | | | | |
| 324625N1135406.1 (15070201) | (C-7-16)33daa | - | 278 | Observation | 1964-78 | 7.4 | 1-16-76 | 21.2 | 1-29-64 | 10.8 | 1-27 |
| HARQUAHALA PLAINS | | | | | | | | | | | |
| 334326N1133034.1 (15070104) | (B-4-12)5aaa | 730 | 1,638 | Irrigation | 1963, 1965-78 | 364.6 | 1-17-77 | 451.9 | 1- 2-78 | 451.9 | 1- 2 |
| HOLBROOK | | | | | | | | | | | |
| 345310N1100625.1 (15020002) | (A-17-21)10cba | 160 | 5,140 | Unused | 1952-58, 1960-78 | 52.1 | 4-23-65 | 53.6 | 4- 4-66 | 52.9 | 1-11 |
| HOPI | | | | | | | | | | | |
| 350002N1103555.1 (15020008) | (A-19-16)36dbb | 610 | 4,890 | Unused | 1976-78 | 34.0 | 3-14-78 | 37.4 | 2-10-76 | 34.0 | 3-14 |
| HOUSE ROCK | | | | | | | | | | | |
| 365942N1112925.1 (14070006) | (A-42-8)36cbc | 655 | 3,735 | Observation | 1968-78 | 80.0 | 12-17-75 | 235.0 | 4-30-68 | 105.6 | 1- 2 |
| HUALAPAI VALLEY | | | | | | | | | | | |
| 352740N1133555.1 (15010007) | (B-24-12)18daa | 440 | 4,255 | Irrigation | 1953-64, 1967-78 | 142.9 | 4- 2-76 | 147.5 | 6-22-55 | 144.2 | 2- 3 |
| KANAB | | | | | | | | | | | |
| 365403N1124528.1 (15010003) | (B-40-4)6aac | 202 | 5,140 | Irrigation | 1975-76, 1978 | 80.0 | 7-27-76 | 81.1 | 1- 2-78 | 81.1 | 1- 2 |
| LITTLE CHINO VALLEY | | | | | | | | | | | |
| 344846N1122714.1 (15060201) | (B-17-2)34acc | 420 | 4,500 | Unused | 1950-78 | 4.0 | 3- 8-72 | 10.6 | 3-10-75 | 9.1 | 3-14 |

See footnote at end of table.

| LATITUDE-LONGITUDE (HYDROLOGIC UNIT) | LOCAL WELL NUMBER | DEPTH OF WELL (feet) | LAND-SURFACE ALTITUDE (feet, NGVD[a]) | TYPE OF WELL | RECORDS AVAILABLE (years) | WATER LEVEL, IN FEET BELOW LAND SURFACE | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Highest | Date | Lowest | Date | 1978 | Date |
| LOWER HASSAYAMPA | | | | | | | | | | | |
| 332934N1125728.1 (15070104) | (B-2-7)27aab | 350 | 1,146 | Irrigation | 1953,1956, 1958-78 | 162.8 | 12- 3-53 | 271.9 | 2-27-78 | 271.9 | 2-27 |
| LOWER SAN PEDRO BASIN | | | | | | | | | | | |
| 325217N1104255.1 (15050203) | (D-6-16)33bad | 60 | 2,100 | Unused | 1949-69, 1971-73, 1975-78 | 6.7 | 2-27-67 | 31.9 | 1- 2-77 | 20.7 | 1-23 |
| 323644N1104612.1 (15050203) | (D-9-15)36bbc | 92 | 4,500 | Domestic | 1949-78 | 32.7 | 2-13-74 | 82 | 8-16-54 | 35.3 | 1- 6 |
| LOWER SANTA CRUZ BASIN | | | | | | | | | | | |
| 330355N1120730.1 (15050303) | (D-4-2)23acc | 800 | 1,187 | Irrigation | 1964-73, 1976-78 | 267.9 | 1- 9-64 | 469.2 | 1-10-78 | 469.2 | 1-10 |
| 325250N1113106.1 (15050100) | (D-6-8)21ddc | 400 | 1,470 | Irrigation | 1952-56, 1960-62, 1964,1966, 1968-73, 1976-78 | 117.3 | 2- 5-52 | 213.0 | 1- 2-72 | 172.9 | 1-23 |
| 324918N1113538.1 (15050303) | (D-7-7)11cdd | 460 | 1,498.2 | Irrigation | 1942-57, 1959-64, 1967-78 | 85.9 | 3-11-42 | 299.1 | 3- 6-75 | 226.6 | 1-23 |
| 324102N1114528.1 (15050303) | (D-8-6)31add | 280 | 1,518 | Unused | 1952, 1955-64, 1966-78 | 128.9 | 2-14-52 | 257.9 | 1- 2-76 | 215.9 | 1-25 |
| 324312N1113330.1 (15050303) | (D-8-8)18cdd1 | 600 | 1,596 | Irrigation | 1967-74, 1976-78 | 329.0 | 1-18-68 | 397.4 | 1-14-77 | 372.4 | 3-17 |
| 323753N1112046.1 (15050303) | (D-9-10)19aaa | 600 | 1,830 | Unused | 1953-64, 1966-78 | 181.1 | 3-28-55 | 226.7 | 1-17-68 | 214.5 | 3-16 |
| 323942N1110302.1 (15050100) | (D-9-13)7cbc | 275 | 3,115 | Stock | 1952-78 | 43.0 | 9-23-55 | 111.5 | 1- 6-53 | 53.7 | 1- 2 |
| McMULLEN VALLEY | | | | | | | | | | | |
| 335727N1130451.1 (15070104) | (B-7-8)15baa | 1,812 | 2,257 | Irrigation | 1962-65, 1967-78 | 479.4 | 1- 2-64 | 552.2 | 1- 2-78 | 552.2 | 1- 2 |
| PUERCO-2UNI | | | | | | | | | | | |
| 343414N1091420.1 (15020003) | (A-14-29)35cdc | 855 | 5,762 | Stock | 1960, 1975-78 | Flowing, 100 gal/min | 11-26-60 | Flowing, 18 gal/min | 9-20-77 | Flowing, 30 gal/min | 5-11 |
| | | | | | | | | | | Flowing, 22 gal/min | 9-13 |
| 345620N1091040.1 (15020004) | (A-18-30)20cdd | 420 | 6,450 | Stock | 1972-78 | 359.2 | 2-22-78 | 366.8 | 1-29-76 | 359.2 | 2-22 |
| RANEGRAS PLAIN | | | | | | | | | | | |
| 334840N1135141.1 (15030105) | (B-5-15)6baa1 | 910 | 1,156 | Irrigation | 1957-58, 1963-78 | 209.9 | 2-15-63 | 225.5 | 2- 6-78 | 225.5 | 2- 6 |
| SACRAMENTO VALLEY | | | | | | | | | | | |
| 351109N1140300.1 (15030103) | (B-21-17)24cdd1 | 120 | 3,310 | Domestic | 1944-78 | 101.5 | 8-14-44 | 120.0 | 2-12-63 | 111.3 | 2-21 |

See footnote at end of table.

WATER LEVELS IN SELECTED WELLS IN GROUND-WATER AREAS IN ARIZONA--Continued

| LATITUDE-LONGITUDE (HYDROLOGIC UNIT) | LOCAL WELL NUMBER | DEPTH OF WELL (feet) | LAND-SURFACE ALTITUDE (feet, NGVD[a]) | TYPE OF WELL | RECORDS AVAILABLE (years) | WATER LEVEL, IN FEET BELOW LAND SURFACE | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Highest | Date | Lowest | Date | 1978 | Date |
| SAFFORD BASIN | | | | | | | | | | | |
| 330505N1100228.1 (15040005) | (D-4-22)13acd | 100 | 2,640 | Irrigation | 1953-78 | 8.9 | 3-13-68 | 29.0 | 8-31-53 | 16.9 | 2- 9 |
| 330239N1100311.1 (15040005) | (D-4-22)35ada | 75 | 2,859.5 | Stock | 1939-44, 1946-78 | 17.1 | 2-11-43 | 39.4 | 3-29-40 | 27.4 | 2- 9 |
| 325633N1095438.1 (15040005) | (D-6-24)5aca | 64 | 2,779.6 | Irrigation | 1940-78 | 37.7 | 3-13-68 | 57.7 | 6-28-55 | 43.6 | 2- 9 |
| 325410N1094806.1 (15040005) | (D-6-25)20aaa | 46 | 2,821.6 | Irrigation | 1939-46, 1948-50, 1952-78 | 10.8 | 5-26-41 | 29.6 | 10-30-56 | 14.0 | 2- 9 |
| 325224N1093050.1 (15040005) | (D-6-28)31aab | 540 | 3,150 | Unused | 1951-78 | 16.7 | 4-25-73 | 44.5 | 7-28-71 | 27.3 | 2-10 |
| 324849N1094035.1 (15040005) | (D-7-26)22bab | 90 | 2,950.3 | Irrigation | 1940-78 | 20.3 | 5-25-42 | 68.2 | 7- 1-57 | 41.5 | 2-10 |
| 324501N1094414.1 (15040005) | (D-8-25)12dba | 400 | 3,235 | Irrigation | 1950-67, 1969-78 | 55.6 | 3-13-50 | 139.2 | 7-31-67 | 76.4 | 2-10 |
| 324115N1094148.1 (15040005) | (D-8-26)33ccc | 400 | 3,340 | Irrigation | 1950-78 | 17.0 | 3-13-50 | 83.5 | 3-14-75 | 47.6 | 2-10 |
| SALT RIVER VALLEY | | | | | | | | | | | |
| 332453N1114111.1 (15050100) | (A-1-6)24dab | 585 | 1,408 | Unused | 1972-78 | 521.9 | 1-18-72 | 557.6 | 1- 2-78 | 557.6 | 1- 2 |
| 333642N1115808.1 (15060106) | (A-3-4)17baa | 981 | 1,414 | Irrigation | 1969-74, 1976-78 | 318.9 | 1-22-69 | 387.9 | 1-25-78 | 387.9 | 1-25 |
| 333916N1120557.1 (15070102) | (A-4-2)36aaa | 670 | 1,373 | Unused | 1948, 1954-55, 1957-61, 1963-64, 1966-71, 1973-78 | 273.1 | 12-20-48 | 558.7 | 2-16-78 | 558.7 | 2-16 |
| 332452N1123350.1 (15070101) | (B-1-3)21dbb | 425 | 987 | Irrigation | 1956-62, 1964-75, 1977-78 | 137.3 | 1-10-56 | 164.9 | 1- 2-77 | 156.2 | 2-20 |
| 333043N1113040.1 (15050100) | (D-2-8)27ddd | 614 | 1,556 | Unused | 1949-54, 1957, 1963-69, 1971-72, 1976-78 | 231.7 | 1-19-49 | 505.6 | 2- 2-76 | 496.2 | 1- 3 |
| SAN BERNARDINO VALLEY | | | | | | | | | | | |
| 312341N1091215.1 (15080302) | (D-23-31)29dca1 | 300 | 4,000 | Stock | 1968, 1970-78 | 157.3 | 9-18-68 | 168.8 | 1- 2-76 | 167.2 | 3-28 |
| SAN FRANCISCO PEAKS | | | | | | | | | | | |
| 351442N1114100.1 (15020015) | (A-22-7)32cbb | 146 | 7,170 | Domestic | 1968-78 | 48.6 | 4- 9-73 | 137.4 | 1-19-76 | 73.5 | 3-22 |
| SAN SIMON BASIN | | | | | | | | | | | |
| 322112N1093626.1 (15040006) | (D-12-27)32aab | 250 | 3,980 | Stock | 1952-54, 1956-57, 1959-64, 1967-78 | 132.5 | 12-20-56 | 137.2 | 12-12-54 | 132.9 | 3-21 |
| 321200N1090945.1 (15040006) | (D-14-31)22adc | 800 | 3,690 | Irrigation | 1973-78 | 92.6 | 4- 5-78 | 128.2 | 2-25-76 | 92.6 | 4- 5 |
| 314911N1090501.1 (15040006) | (D-18-32)33bca2 | 227 | 4,220 | Domestic | 1969-78 | 134.7 | 1-22-70 | 148.3 | 1- 2-75 | 144.8 | 3-29 |

See footnote at end of table.

| LATITUDE-LONGITUDE (HYDROLOGIC UNIT) | LOCAL WELL NUMBER | DEPTH OF WELL (feet) | LAND-SURFACE ALTITUDE (feet, NGVD[a]) | TYPE OF WELL | RECORDS AVAILABLE (years) | WATER LEVEL, IN FEET BELOW LAND SURFACE | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Highest | Date | Lowest | Date | 1978 | Date |
| SAN SIMON WASH | | | | | | | | | | | |
| 315444N1115503.1 (15080101) | (D-17-4)34abd | 201 | 2,301.4 | Irrigation | 1968-78 | 123.4 | 2-23-72 | 126.9 | 3-13-75 | 124.0 | 1- 2 |
| SNOWFLAKE | | | | | | | | | | | |
| 343009N1100435.1 (15020005) | (A-13-21)24ccb | 324 | 5,618 | Irrigation | 1952-58, 1960-61, 1963-78 | 60.2 | 5-13-57 | 97.3 | 3- 5-70 | 84.2 | 3- 8 |
| ST. JOHNS | | | | | | | | | | | |
| 342548N1092503.1 (15020002) | (A-12-28)19bad | 650 | 5,925 | Irrigation | 1975-78 | 19.0 | 9-19-77 | 38.8 | 9- 9-76 | 22.2<br>38.1 | 5-11<br>9-13 |
| 343018N1092353.1 (15020002) | (A-13-28)29bcd | 50 | 5,800 | Domestic | 1944-58, 1960-72, 1975-78 | 7.4 | 3- 1-67 | 30.9 | 5- 3-56 | 11.2 | 2-23 |
| 343439N1092703.1 (15020002) | (A-14-27)35bdc | - | 5,635 | Stock | 1975-78 | 81.8 | 5-11-78 | 101.0 | 5-12-75 | 81.8<br>86.7 | 5-11<br>9-14 |
| TONTO BASIN | | | | | | | | | | | |
| 334707N1111543.1 (15060105) | (A-5-11)7dda | - | 2,149 | Stock | 1969, 1972-78 | 1.4 | 3- 1-73 | 14.4 | 1- 2-76 | 4.3 | 4- 4 |
| UPPER SALT RIVER BASIN | | | | | | | | | | | |
| 332658N1104932.1 (15060103) | (A-1-15)9aad2 | - | 3,237 | Industrial | 1970-78 | 28.0 | 3-27-78 | 65.5 | 1-19-77 | 28.0 | 3-27 |
| 332055N1104555.1 (15060103) | (D-1-15)13bda | 105 | 3,800 | Unused | 1946-55, 1957, 1959-78 | 3.5 | 5- 5-49 | 39.5 | 2-14-61 | 6.1 | 3-27 |
| UPPER SAN PEDRO BASIN | | | | | | | | | | | |
| 320005N1101709.1 (15050202) | (D-16-20)34acd2 | 117 | 3,525 | Irrigation | 1969-78 | 76.7 | 1- 5-78 | 90.1 | 1-26-76 | 76.7 | 1- 5 |
| 315500N1101322.1 (15050202) | (D-17-21)32bab | 520 | 3,705 | Domestic, Stock | 1944-78 | 16.9 | 12- 9-46 | 47.8 | 1-22-75 | 35.7 | 2-23 |
| 315417N1101400.1 (15050202) | (D-18-21)6aaa2 | 60 | 3,620 | Domestic | 1944-58, 1960-78 | 24.8 | 2-23-78 | 39.7 | 5-28-54 | 24.8 | 2-23 |
| 312250N1100639.1 (15050202) | (D-23-22)33dcd2 | 91.5 | 4,200 | Observation | 1954-63, 1966-78 | 11.5 | 8-24-55 | 18.5 | 7-15-61 | 15.7 | 3-17 |
| UPPER SANTA CRUZ BASIN | | | | | | | | | | | |
| 320824N1105930.1 (15050301) | (D-15-13)11cba | 224 | 2,457 | Observation | 1968-78 | 82.0 | 2-21-68 | 143.6 | 1- 2-78 | 143.6 | 1- 2 |
| 314718N1104139.1 (15050302) | (D-19-16)15aba | 300 | 4,980 | Stock | 1952-78 | 203.7 | 4-10-69 | 222.4 | 1-22-70 | 215.0 | 1- 2 |
| 313225N1104533.1 (15050301) | (D-22-15)12aad | 60 | 4,035 | Domestic | 1949, 1952-64, 1966-78 | 10.1 | 1-25-56 | 26.0 | 6- 8-54 | 18.2 | 1- 2 |
| 312419N1105412.1 (15050301) | (D-23-14)27baa | 36 | 3,575 | Unused | 1939-57, 1959-61, 1963-78 | 12.6 | 1- 6-60 | 21.8 | 7-28-48 | 13.8 | 1- 2 |
| 312119N1103517.1 (15050301) | (D-24-17)11cda | 23 | 4,650 | Observation | 1949-78 | 1.8 | 12-30-55 | 14.6 | 7-24-64 | 5.2 | 1- 2 |

See footnote at end of table.

| LATITUDE-LONGITUDE (HYDROLOGIC UNIT) | LOCAL WELL NUMBER | DEPTH OF WELL (feet) | LAND-SURFACE ALTITUDE (feet, NGVD[a]) | TYPE OF WELL | RECORDS AVAILABLE (years) | WATER LEVEL, IN FEET BELOW LAND SURFACE | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Highest | Date | Lowest | Date | 1978 | Date |
| UPPER VERDE RIVER | | | | | | | | | | | |
| 344306N1115520.1 (15060202) | (A-15-4)4dd | 250 | 3,375 | Domestic | 1959-78 | 36.8 | 8-18-59 | 60.4 | 1-25-77 | 59.6 | 1-18 |
| WATERMAN WASH | | | | | | | | | | | |
| 331311N1122529.1 (15070101) | (C-2-2)25ccc | 882 | 1,078 | Irrigation | 1956-78 | 222.8 | 2-28-57 | 350.9 | 2- 9-78 | 350.9 | 2- 9 |
| WHITE MOUNTAINS | | | | | | | | | | | |
| 341429N1100252.1 (15020005) | (A-10-22)30aba | 750 | 6,485 | Municipal | 1969-78 | 523.2 | 3-27-69 | 532.0 | 2-13-74 | 524.2 | 2-23 |
| WILLCOX BASIN | | | | | | | | | | | |
| 321838N1095431.1 (15050201) | (D-13-24)16bbb | 1,356 | 4,210 | Observation | 1942, 1944-78 | 29.7 | 5-13-42 | 130.7 | 8-31-62 | 128.0 | 1-31 |
| 321323N1095217.1 (15050201) | (D-14-24)14bba2 | - | 4,167 | Domestic | 1963-69, 1971-78 | 9.0 | 2- 6-63 | 27.6 | 2-21-78 | 27.6 | 2-21 |
| 321115N1095552.1 (15050201) | (D-14-24)30dba | - | 4,187 | Stock | 1942, 1944-57, 1963-78 | 16.0 | 10-21-55 | 33.9 | 1-14-74 | 29.8 | 2-21 |
| 320235N1094750.1 (15050201) | (D-16-25)16add | 65 | 4,190 | Stock | 1942, 1944-57, 1959-78 | 27.0 | 2-18-69 | 43.6 | 12-19-57 | 31.9 | 2-21 |
| WILLIAMSON VALLEY | | | | | | | | | | | |
| 344630N1123944.1 (15060201) | (B-16-4)14bbb | 353 | 4,600 | Irrigation | 1952-53, 1955-56, 1958-78 | Flowing | 3-14-78 | 7.8 | 10-23-56 | Flowing | 3-14 |
| YUMA | | | | | | | | | | | |
| 323840N1143201.1 (15030108) | (C-9-22)17dca | 195 | 205 | Unused | 1945-58, 1960-78 | 52.5 | 11-15-60 | 97.6 | 9- 5-46 | 71.0 | 2- 2 |

[a] NGVD, National Geodetic Vertical Datum of 1929.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| LOCAL IDENT-I-FIER | DATE OF SAMPLE | TEMPER-ATURE (DEG C) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) | ALKA-LINITY (MG/L AS CACO3) | BICAR-BONATE (MG/L AS HCO3) | CAR-BONATE (MG/L AS CO3) | NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) | PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4) |
|---|---|---|---|---|---|---|---|---|---|---|
| AGUA FRIA BASIN | | | | | | | | | | |
| A-13-02 11AAA | 78-04-20 | 16.5 | 220 | 7.5 | 6.6 | 110 | 130 | 0 | .21 | .00 |
| A-13-03 01BDC | 78-04-19 | 21.0 | 420 | 7.8 | 4.8 | 160 | 190 | 0 | 2.6 | .03 |
| A-13-04 18ADD | 78-04-19 | 15.5 | 800 | 7.4 | 18 | 240 | 290 | 0 | 2.3 | .00 |
| A-14-02H25CCA | 78-04-20 | 14.0 | 700 | 7.6 | 16 | 320 | 390 | 0 | 3.9 | .06 |
| BIG CHINO VALLEY | | | | | | | | | | |
| B-21-02 14BCC | 78-05-08 | 26.0 | 590 | 7.5 | 11 | 170 | 210 | 0 | 2.0 | .00 |
| CANYON DIABLO | | | | | | | | | | |
| A-16-09 13BDD | 78-07-17 | 27.0 | 365 | 7.7 | 1.7 | 200 | 240 | 0 | .11 | -- |
| A-17-10 19CAD | 78-07-18 | 16.0 | 130 | 8.0 | 1.2 | 62 | 75 | 0 | .04 | -- |
| A-19-10 18CCA | 78-07-26 | 12.5 | 425 | 7.4 | 13 | 160 | 200 | 0 | 2.0 | .15 |
| A-19-12H13BAD | 78-06-22 | 19.5 | 950 | 7.4 | 12 | 160 | 190 | 0 | .26 | .03 |
| A-20-09 30ADC | 78-07-24 | 17.0 | 660 | 7.5 | 16 | 260 | 320 | 0 | .03 | .06 |
| A-20-10S01AAA | 78-07-12 | -- | 450 | 7.4 | 13 | 170 | 210 | 0 | .79 | .12 |
| A-20-11 07ADD | 78-07-12 | 20.0 | 600 | 7.8 | 4.3 | 140 | 170 | 0 | .49 | .09 |
| CHEVELON | | | | | | | | | | |
| A-14-10 02ACB | 78-07-13 | -- | 640 | 7.4 | 22 | 290 | 350 | 0 | 2.5 | -- |
| CONCHO | | | | | | | | | | |
| A-12-26 02BDA | 78-05-10 | 17.0 | 790 | 8.1 | 2.8 | 180 | 220 | 0 | 4.6 | .06 |
| A-12-26 19ABA | 78-05-10 | 16.0 | 150 | 7.8 | 2.5 | 80 | 97 | 0 | .46 | .15 |
| | 78-09-12 | 15.5 | 175 | 8.0 | 1.5 | 75 | 91 | 0 | .43 | .25 |
| A-13-24 22BBD | 78-05-11 | 18.0 | 510 | 7.6 | 7.6 | 160 | 190 | 0 | .01 | .03 |
| | 78-09-12 | 17.5 | 500 | 7.5 | 9.6 | 160 | 190 | 0 | .02 | .03 |
| A-13-26 12DDA | 78-09-14 | 15.5 | 3200 | 7.8 | 6.6 | 210 | 260 | 0 | 3.0 | .03 |
| A-14-24 29DCC | 78-05-11 | 18.0 | 575 | 7.5 | 9.1 | 150 | 180 | 0 | .01 | .03 |
| | 78-09-12 | 18.5 | 560 | 7.5 | 8.6 | 140 | 170 | 0 | .02 | .03 |
| A-14-25 14CCD | 78-05-12 | 17.5 | 760 | 7.7 | 6.4 | 160 | 200 | 0 | .23 | .03 |
| | 78-09-18 | 18.5 | 650 | 7.6 | 7.6 | 160 | 190 | 0 | .01 | .03 |
| A-14-26 21BCC | 78-05-11 | 18.0 | 790 | 7.5 | 9.6 | 160 | 190 | 0 | .01 | .03 |
| DOUGLAS BASIN | | | | | | | | | | |
| D-19-26 28BBA2 | 78-04-21 | 21.5 | 390 | 7.7 | 5.1 | 130 | 160 | 0 | -- | -- |
| D-21-25 15DBB | 78-04-27 | 24.0 | 490 | 7.9 | 4.0 | 160 | 200 | 0 | -- | -- |
| GILA RIVER DRAINAGE FROM PAINTED ROCK DAM TO TEXAS HILL | | | | | | | | | | |
| C-01-17 14CAC UNSURV | 78-03-31 | 20.0 | 747 | 7.5 | 12 | 190 | 230 | 0 | 2.2 | .06 |
| HASSAYAMPA BASIN | | | | | | | | | | |
| B-04-05 18DCC | 78-04-17 | 25.0 | 395 | 7.1 | 24 | 160 | 190 | 0 | -- | -- |
| B-05-07 22DBD | 78-04-17 | 25.0 | 410 | 6.9 | 44 | 180 | 220 | 0 | -- | -- |
| B-06-04 02CCC | 78-04-25 | 26.5 | 395 | 8.4 | 1.0 | 130 | 160 | 0 | -- | -- |
| B-06-05 31BCC | 78-04-25 | 28.5 | 480 | 7.7 | 8.0 | 210 | 250 | 0 | -- | -- |
| B-07-04 07CDC3 | 78-04-25 | 22.5 | 2400 | 7.2 | 30 | 250 | 300 | 0 | -- | -- |
| B-07-04 07DCC | 78-04-25 | 22.0 | 570 | 7.0 | 45 | 230 | 280 | 0 | -- | -- |
| B-07-04 17AAA | 78-04-25 | 27.5 | 410 | 7.7 | 6.4 | 160 | 200 | 0 | -- | -- |
| B-07-04 18ACA1 | 78-04-25 | 23.5 | 705 | 7.1 | 41 | 260 | 320 | 0 | -- | -- |
| B-07-04 20CAA | 78-04-26 | 21.0 | 640 | 6.8 | 76 | 250 | 300 | 0 | -- | -- |
| B-07-05 21ABC | 78-04-26 | 26.0 | 390 | 6.9 | 36 | 150 | 180 | 0 | -- | -- |
| B-08-05 19CBC | 78-04-25 | 27.5 | 350 | 7.4 | 13 | 160 | 200 | 0 | -- | -- |
| B-09-05 35DBB | 78-04-26 | 24.0 | 450 | 7.3 | 18 | 190 | 230 | 0 | -- | -- |
| B-09-06 13CAD | 78-04-26 | 25.0 | 580 | 7.5 | 9.6 | 160 | 190 | 0 | -- | -- |
| B-10-05 28ABB | 78-04-19 | 19.0 | 678 | 6.8 | 48 | 160 | 190 | 0 | -- | -- |
| HOUSE ROCK | | | | | | | | | | |
| A-41-08 04DDA | 77-10-18 | 24.0 | 1150 | 7.2 | 30 | 250 | 300 | 0 | .98 | .00 |
| A-41-08 14BCA | 77-10-19 | -- | 1100 | 7.7 | 8.9 | 230 | 280 | 0 | .65 | .00 |
| A-42-08 35DAB2 | 77-10-18 | 24.0 | 2000 | 7.3 | 29 | 300 | 360 | 0 | .63 | .00 |
| A-42-08 35DCD | 77-10-18 | 24.0 | 1600 | 7.3 | 30 | 300 | 370 | 0 | .99 | .00 |
| A-42-08 36CCC2 | 77-10-18 | 21.0 | 950 | 7.5 | 9.6 | 160 | 190 | 0 | .64 | .00 |
| LOWER SAN PEDRO BASIN | | | | | | | | | | |
| D-08-15 03ACA | 78-09-28 | 26.0 | -- | -- | -- | 170 | 210 | -- | 4.7 | -- |
| D-09-16 09BDB | 78-08-31 | 28.0 | -- | -- | -- | 250 | 310 | -- | 3.9 | -- |
| D-11-17 18EACA | 78-08-15 | -- | -- | -- | -- | 170 | 210 | -- | 1.0 | -- |
| D-11-18 14CDD | 78-08-16 | 24.0 | -- | -- | -- | 230 | 280 | -- | 7.5 | -- |
| LOWER SANTA CRUZ BASIN | | | | | | | | | | |
| D-04-09 15BAB2 | 77-12-12 | 19.0 | 1020 | 7.8 | 4.3 | 140 | 170 | 0 | -- | -- |
| D-05-09 14CAC | 78-02-24 | 24.0 | 774 | 7.6 | 3.7 | 76 | 93 | 0 | -- | -- |
| | 78-02-24 | 24.0 | 862 | 7.4 | 8.3 | 110 | 130 | 0 | -- | -- |
| | 78-02-24 | 22.0 | 857 | 7.2 | 16 | 130 | 160 | 0 | -- | -- |
| D-05-10 06ACB | 77-12-12 | 19.0 | 925 | 7.9 | 3.8 | 160 | 190 | 0 | -- | -- |
| NEW RIVER-CAVE CREEK | | | | | | | | | | |
| A-05-03 04CDC | 77-11-04 | 20.0 | 420 | 7.8 | 5.6 | 180 | 220 | 0 | -- | -- |
| A-05-04 28BDD | 77-11-04 | 26.0 | 550 | 7.4 | 17 | 220 | 270 | 0 | -- | -- |
| A-06-04 27BDA1 | 77-11-04 | 26.0 | 725 | 7.6 | 13 | 260 | 320 | 0 | -- | -- |

WATER-QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978--Continued

| LOCAL IDENTIFIER | DATE OF SAMPLE | HARDNESS (MG/L AS CACO3) | HARDNESS, NONCARBONATE (MG/L CACO3) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) | SODIUM ADSORPTION RATIO | SODIUM PERCENT | POTASSIUM, DISSOLVED (MG/L AS K) | CHLORIDE, DISSOLVED (MG/L AS CL) | SULFATE DISSOLVED (MG/L AS SO4) |
|---|---|---|---|---|---|---|---|---|---|---|
| AGUA FRIA BASIN | | | | | | | | | | |
| A-13-02 11AAA | 78-04-20 | -- | -- | -- | 1.0 | -- | 1 | 39 | 5.9 | 8.2 |
| A-13-03 01BDC | 78-04-19 | 150 | 0 | 17 | 22 | .8 | 23 | 9.9 | 19 | 10 |
| A-13-04 18ADD | 78-04-19 | -- | -- | -- | 15 | -- | 7 | 240 | 17 | 160 |
| A-14-02H25CCA | 78-04-20 | 340 | 19 | 27 | 60 | 1.4 | 26 | 20 | 36 | 81 |
| BIG CHINO VALLEY | | | | | | | | | | |
| B-21-02 14BCC | 78-05-08 | 220 | 43 | 19 | 50 | 1.5 | 33 | 1.7 | 34 | 92 |
| CANYON DIABLO | | | | | | | | | | |
| A-16-09 13BDD | 78-07-17 | 190 | 0 | 22 | 7.9 | .3 | 8 | 3.8 | 4.7 | 20 |
| A-17-10 19CAD | 78-07-18 | 58 | 0 | 6.9 | 4.3 | .2 | 14 | .7 | 1.6 | 3.8 |
| A-19-10 18CCA | 78-07-26 | 200 | 32 | 18 | 19 | .6 | 17 | .8 | 24 | 19 |
| A-19-12H13BAD | 78-06-22 | 480 | 320 | 49 | 37 | .7 | 14 | 1.8 | 37 | 320 |
| A-20-09 30ADC | 78-07-24 | 340 | 72 | 31 | 14 | .3 | 8 | 1.1 | 27 | 53 |
| A-20-10S01AAA | 78-07-12 | 220 | 49 | 27 | 8.3 | .2 | 6 | 1.4 | 7.6 | 45 |
| A-20-11 07ADD | 78-07-12 | 270 | 130 | 31 | 23 | .6 | 16 | <.0 | 22 | 120 |
| CHEVELON | | | | | | | | | | |
| A-14-10 02ACB | 78-07-13 | 330 | 45 | 29 | 4.1 | .1 | 3 | .8 | 12 | 7.2 |
| CONCHO | | | | | | | | | | |
| A-12-26 02BDA | 78-05-10 | 160 | 0 | 22 | 100 | 3.4 | 57 | 4.3 | 91 | 52 |
| A-12-26 19ABA | 78-05-10 | 73 | 0 | 8.7 | 7.6 | .4 | 18 | 2.9 | 3.3 | 5.4 |
| | 78-09-12 | 68 | 0 | 7.9 | 7.0 | .4 | 18 | 2.7 | 3.2 | 5.4 |
| A-13-24 22BBD | 78-05-11 | 250 | 94 | 20 | 15 | .4 | 11 | 2.8 | 18 | 87 |
| | 78-09-12 | 230 | 76 | 18 | 14 | .4 | 12 | 2.6 | 15 | 87 |
| A-13-26 12DDA | 78-09-14 | 790 | 580 | 120 | 330 | 5.1 | 47 | 2.8 | 680 | 350 |
| A-14-24 29DCC | 78-05-11 | 250 | 100 | 24 | 24 | .7 | 17 | 3.6 | 27 | 120 |
| | 78-09-12 | 220 | 80 | 20 | 18 | .5 | 15 | 3.1 | 23 | 98 |
| A-14-25 14CCD | 78-05-12 | 280 | 120 | 26 | 37 | 1.0 | 22 | 5.3 | 45 | 130 |
| | 78-09-18 | 250 | 90 | 22 | 33 | .9 | 22 | 4.8 | 41 | 110 |
| A-14-26 21BCC | 78-05-11 | 160 | 1 | 12 | 100 | 3.5 | 57 | 6.0 | 120 | 47 |
| DOUGLAS BASIN | | | | | | | | | | |
| D-19-26 28BBA2 | 78-04-21 | 100 | 0 | 3.6 | 39 | 1.7 | 44 | 2.3 | 13 | 25 |
| D-21-25 15DBB | 78-04-27 | 120 | 0 | 7.2 | 60 | 2.4 | 52 | 2.7 | 28 | 33 |
| GILA RIVER DRAINAGE FROM PAINTED ROCK DAM TO TEXAS HILL | | | | | | | | | | |
| C-01-17 14CAC UNSURV | 78-03-31 | 290 | 97 | 19 | 39 | 1.0 | 23 | 1.5 | 90 | 48 |
| HASSAYAMPA BASIN | | | | | | | | | | |
| B-04-05 18DCC | 78-04-17 | 49 | 0 | 4.1 | 69 | 4.3 | 74 | 2.1 | 18 | 22 |
| B-05-07 22DBD | 78-04-17 | 85 | 0 | 6.2 | 55 | 2.6 | 54 | 12 | 12 | 10 |
| B-06-04 02CCC | 78-04-25 | 17 | 0 | .1 | 84 | 8.9 | 91 | .5 | 28 | 36 |
| B-06-05 31BCC | 78-04-25 | 100 | 0 | 10 | 77 | 3.3 | 61 | 1.6 | 27 | 19 |
| B-07-04 07CDC3 | 78-04-25 | 780 | 530 | 110 | 220 | 3.4 | 38 | 2.6 | 280 | 400 |
| B-07-04 07DCC | 78-04-25 | 210 | 0 | 16 | 53 | 1.6 | 35 | 2.8 | 28 | 53 |
| B-07-04 17AAA | 78-04-25 | 140 | 0 | 14 | 35 | 1.3 | 35 | 3.8 | 23 | 9.3 |
| B-07-04 18ACA1 | 78-04-25 | 280 | 22 | 23 | 47 | 1.2 | 26 | 2.7 | 32 | 74 |
| B-07-04 20CAA | 78-04-26 | 260 | 15 | 21 | 46 | 1.2 | 27 | 2.7 | 28 | 59 |
| B-07-05 21ABC | 78-04-26 | 140 | 0 | 9.2 | 30 | 1.1 | 31 | 4.5 | 20 | 14 |
| B-08-05 19CBC | 78-04-25 | 110 | 0 | 12 | 39 | 1.6 | 43 | 3.4 | 20 | 6.5 |
| B-09-05 35DBB | 78-04-26 | 180 | 0 | 13 | 28 | .9 | 25 | 2.7 | 19 | 10 |
| B-09-06 13CAD | 78-04-26 | 210 | 49 | 9.8 | 40 | 1.2 | 29 | 2.9 | 46 | 67 |
| B-10-05 28ABB | 78-04-19 | 320 | 170 | 27 | 44 | 1.1 | 23 | 2.6 | 40 | 190 |
| HOUSE ROCK | | | | | | | | | | |
| A-41-08 04DDA | 77-10-18 | 390 | 140 | 45 | 110 | 2.4 | 37 | 14 | 91 | 250 |
| A-41-08 14BCA | 77-10-19 | 400 | 170 | 46 | 90 | 2.0 | 32 | 9.2 | 92 | 250 |
| A-42-08 35DAB2 | 77-10-18 | 490 | 200 | 47 | 270 | 5.3 | 53 | 21 | 140 | 570 |
| A-42-08 35DCD | 77-10-18 | 550 | 240 | 54 | 150 | 2.8 | 36 | 20 | 110 | 450 |
| A-42-08 36CCC2 | 77-10-18 | 300 | 140 | 31 | 97 | 2.5 | 41 | 11 | 59 | 270 |
| LOWER SAN PEDRO BASIN | | | | | | | | | | |
| D-08-15 03ACA | 78-09-28 | 150 | 0 | 13 | 38 | 1.3 | 35 | 1.7 | 25 | 22 |
| D-09-16 09BDB | 78-08-31 | 220 | 0 | 22 | 36 | 1.1 | 26 | 4.1 | 21 | 17 |
| D-11-17 18EACA | 78-08-15 | 200 | 29 | 10 | 9.2 | .3 | 9 | 3.0 | 6.2 | 48 |
| D-11-18 14CDD | 78-08-16 | 330 | 99 | 21 | 74 | 1.8 | 33 | 4.1 | 31 | 200 |
| LOWER SANTA CRUZ BASIN | | | | | | | | | | |
| D-04-09 15BAB2 | 77-12-12 | 170 | 27 | 12 | 130 | 4.4 | 62 | 6.3 | 160 | 75 |
| D-05-09 14CAC | 78-02-24 | 28 | 0 | .9 | 150 | 12 | 91 | 2.8 | 150 | 62 |
| | 78-02-24 | 45 | 0 | 1.9 | 160 | 10 | 87 | 4.6 | 160 | 67 |
| | 78-02-24 | 180 | 52 | 9.4 | 92 | 3.0 | 51 | 5.9 | 150 | 54 |
| D-05-10 06ACB | 77-12-12 | 240 | 80 | 16 | 90 | 2.6 | 45 | 5.3 | 150 | 62 |
| NEW RIVER-CAVE CREEK | | | | | | | | | | |
| A-05-03 04CDC | 77-11-04 | 170 | 0 | 20 | 27 | .9 | 26 | 2.4 | 22 | 9.5 |
| A-05-04 28BDD | 77-11-04 | 190 | 0 | 17 | 44 | 1.4 | 33 | 2.1 | 27 | 22 |
| A-06-04 27BDA1 | 77-11-04 | 250 | 0 | 24 | 60 | 1.6 | 34 | 2.1 | 48 | 35 |

WATER-QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978--Continued

| LOCAL IDENT-I-FIER | DATE OF SAMPLE | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA DIS-SOLVED (MG/L AS SIO2) | ARSENIC DIS-SOLVED (UG/L AS AS) | BORON, DIS-SOLVED (UG/L AS B) | IRON, DIS-SOLVED (UG/L AS FE) | MANGA-NESE, DIS-SOLVED (UG/L AS MN) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER AC-FT) |
|---|---|---|---|---|---|---|---|---|---|
| AGUA FRIA BASIN | | | | | | | | | |
| A-13-02 11AAA | 78-04-20 | .1 | 5.6 | -- | 90 | 70 | 30 | -- | -- |
| A-13-03 01BDC | 78-04-19 | .2 | 38 | -- | 20 | 10 | 0 | 251 | .34 |
| A-13-04 18ADD | 78-04-19 | .3 | 25 | -- | 20 | 80 | 40 | -- | -- |
| A-14-02H25CCA | 78-04-20 | .4 | 27 | -- | 50 | 10 | 0 | 352 | .75 |
| BIG CHINO VALLEY | | | | | | | | | |
| B-21-02 14BCC | 78-05-08 | .3 | 15 | 3 | 150 | 10 | 40 | 380 | .52 |
| CANYON DIABLO | | | | | | | | | |
| A-16-09 13BDD | 78-07-17 | .1 | 8.5 | -- | 40 | 100 | 9 | 226 | .31 |
| A-17-10 19CAD | 78-07-18 | .0 | 27 | -- | 20 | 30 | 0 | 94 | .13 |
| A-19-10 18CCA | 78-07-26 | .4 | 29 | -- | 30 | 30 | 0 | 267 | .36 |
| A-19-12H13BAD | 78-06-22 | .2 | 10 | -- | 90 | 10 | 0 | 660 | .90 |
| A-20-09 30ADC | 78-07-24 | .2 | 37 | -- | 70 | 100 | 60 | 404 | .55 |
| A-20-10S01AAA | 78-07-12 | .2 | 13 | -- | 30 | 300 | 10 | 254 | .35 |
| A-20-11 07ADD | 78-07-12 | .2 | 12 | -- | 4 | 90 | 0 | 352 | .48 |
| CHEVELON | | | | | | | | | |
| A-14-10 02ACB | 78-07-13 | .1 | 9.4 | -- | 10 | 40 | 10 | 331 | .45 |
| CONCHO | | | | | | | | | |
| A-12-26 02BDA | 78-05-10 | 1.2 | 28 | -- | 300 | 100 | 10 | 456 | .62 |
| A-12-26 19ABA | 78-05-10 | .1 | 28 | -- | 10 | 0 | 0 | 121 | .16 |
| | 78-09-12 | .1 | 29 | -- | 0 | 50 | -- | 116 | .15 |
| A-13-24 22BBD | 78-05-11 | .2 | 12 | -- | 30 | 130 | 10 | 316 | .43 |
| | 78-09-12 | .2 | 13 | -- | 20 | 390 | 0 | 307 | .42 |
| A-13-26 12DDA | 78-09-14 | 1.3 | 34 | -- | 450 | 50 | 20 | 1780 | 2.42 |
| A-14-24 29DCC | 78-05-11 | .3 | 11 | -- | 30 | 1600 | 30 | 361 | .49 |
| | 78-09-12 | .3 | 11 | -- | 120 | 820 | 10 | 313 | .43 |
| A-14-25 14CCD | 78-05-12 | .5 | 9.1 | -- | 70 | 140 | 20 | 423 | .58 |
| | 78-09-18 | .5 | 11 | -- | 40 | 10 | 20 | 378 | .51 |
| A-14-26 21BCC | 78-05-11 | .7 | 9.2 | -- | 110 | 210 | 40 | 432 | 59.0 |
| DOUGLAS BASIN | | | | | | | | | |
| D-19-26 28BBA2 | 78-04-21 | 2.0 | 29 | -- | 70 | 40 | 0 | 229 | .31 |
| D-21-25 15DBB | 78-04-27 | 1.3 | 31 | -- | 130 | 0 | 0 | 297 | .40 |
| GILA RIVER DRAINAGE FROM PAINTED ROCK DAM TO TEXAS HILL | | | | | | | | | |
| C-01-17 14CAC UNSURV | 78-03-31 | .3 | 28 | -- | 140 | 10 | 20 | 432 | .59 |
| HASSAYAMPA BASIN | | | | | | | | | |
| B-04-05 18DCC | 78-04-17 | 1.9 | 22 | -- | 140 | 30 | 0 | 246 | .33 |
| B-05-07 22DBD | 78-04-17 | 1.0 | 43 | -- | 120 | 100 | 10 | 272 | .37 |
| B-06-04 02CCC | 78-04-25 | .5 | 21 | -- | 90 | 0 | 10 | 256 | .35 |
| B-06-05 31BCC | 78-04-25 | 3.2 | 23 | -- | 180 | 10 | 10 | 309 | .42 |
| B-07-04 07CDC3 | 78-04-25 | 1.9 | 37 | -- | 540 | 10 | 20 | 1330 | 1.81 |
| B-07-04 07DCC | 78-04-25 | 1.5 | 31 | -- | 130 | 10 | 10 | 382 | .52 |
| B-07-04 17AAA | 78-04-25 | 1.0 | 43 | -- | 70 | 0 | 10 | 260 | .35 |
| B-07-04 18ACA1 | 78-04-25 | .8 | 29 | -- | 140 | 0 | 0 | 442 | .60 |
| B-07-04 20CAA | 78-04-26 | .8 | 30 | -- | 140 | 0 | 10 | 406 | .55 |
| B-07-05 21ABC | 78-04-26 | 2.1 | 38 | -- | 90 | 0 | 10 | 247 | .34 |
| B-08-05 19CBC | 78-04-25 | .5 | 23 | -- | 60 | 0 | 30 | 226 | .31 |
| B-09-05 35DBB | 78-04-26 | .3 | 28 | -- | 50 | 50 | 10 | 264 | .36 |
| B-09-06 13CAD | 78-04-26 | .2 | 31 | -- | 30 | 10 | 10 | 357 | .49 |
| B-10-05 28ABB | 78-04-19 | 1.1 | 23 | -- | 50 | 190 | 30 | 507 | .69 |
| HOUSE ROCK | | | | | | | | | |
| A-41-08 04DDA | 77-10-18 | .5 | 13 | 13 | 130 | 60 | 8 | 757 | 1.03 |
| A-41-08 14BCA | 77-10-19 | .3 | 13 | 2 | 110 | 40 | 20 | 725 | .99 |
| A-42-08 35DAB2 | 77-10-18 | .7 | 17 | 40 | 220 | 170 | -- | 1370 | 1.85 |
| A-42-08 35DCD | 77-10-18 | .5 | 16 | 30 | 160 | 70 | 20 | 1120 | 1.52 |
| A-42-08 36CCC2 | 77-10-18 | .8 | 14 | 30 | 110 | 180 | 50 | 647 | .88 |
| LOWER SAN PEDRO BASIN | | | | | | | | | |
| D-08-15 03ACA | 78-09-28 | .7 | 31 | -- | 120 | <10 | 1 | 295 | .40 |
| D-09-16 09BDB | 78-08-31 | .9 | 25 | -- | 100 | 20 | 6 | 348 | .47 |
| D-11-17 18EACA | 78-08-15 | .4 | 19 | -- | 30 | 10 | 3 | 268 | .36 |
| D-11-18 14CDD | 78-08-16 | 1.1 | 37 | -- | 80 | 10 | 5 | 637 | .87 |
| LOWER SANTA CRUZ BASIN | | | | | | | | | |
| D-04-09 15BAB2 | 77-12-12 | 1.0 | 26 | -- | 120 | 10 | 80 | 541 | .74 |
| D-05-09 14CAC | 78-02-24 | 1.1 | 16 | -- | 110 | 20 | 40 | 438 | .60 |
| | 78-02-24 | 1.0 | 16 | -- | 110 | 20 | 40 | 490 | .67 |
| | 78-02-24 | .6 | 31 | -- | 150 | 20 | 20 | 480 | .65 |
| D-05-10 06ACB | 77-12-12 | 1.2 | 27 | -- | 130 | 10 | 200 | 514 | .70 |
| NEW RIVER-CAVE CREEK | | | | | | | | | |
| A-05-03 04CDC | 77-11-04 | .3 | 39 | -- | 50 | 10 | 0 | 263 | .36 |
| A-05-04 28BDD | 77-11-04 | .6 | 40 | -- | 80 | 20 | 0 | 334 | .45 |
| A-06-04 27BDA1 | 77-11-04 | 1.0 | 58 | -- | 200 | 10 | 0 | 448 | .61 |

WATER-QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978--Continued

| LOCAL IDENT-I-FIER | DATE OF SAMPLE | TEMPER-ATURE (DEG C) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) | ALKA-LINITY (MG/L AS CACO3) | BICAR-BONATE (MG/L AS HCO3) | CAR-BONATE (MG/L AS CO3) | NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) | PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4) |
|---|---|---|---|---|---|---|---|---|---|---|
| PUERCO-ZUNI | | | | | | | | | | |
| A-14-28 10CDC | 78-05-12 | 7.0 | 3900 | 7.0 | 96 | 500 | 610 | 0 | .01 | .00 |
| A-14-29 35CDC | 78-05-11 | 20.0 | 2000 | 6.9 | 129 | 530 | 640 | 0 | .01 | .00 |
| A-14-29 35CDC | 78-09-13 | 20.5 | 2000 | 6.8 | 162 | 530 | 640 | 0 | .01 | .03 |
| SACRAMENTO VALLEY | | | | | | | | | | |
| B-17-17 31BCB | 78-05-04 | 46.0 | 562 | 7.4 | 9.6 | 120 | 150 | 0 | 2.2 | .00 |
| B-17-18 12ABD | 78-05-04 | 33.0 | 575 | 7.4 | 11 | 140 | 170 | 0 | 2.3 | .00 |
| B-17-18 12BCB | 78-05-04 | 28.5 | 471 | 7.6 | 6.4 | 130 | 160 | 0 | 3.2 | .03 |
| B-20-18 04BBB | 78-04-27 | 36.5 | 502 | 7.7 | 5.1 | 130 | 160 | 0 | 3.5 | .03 |
| B-21-17 11CCA | 78-04-27 | 23.0 | 799 | 7.4 | 20 | 260 | 320 | 0 | 10 | .09 |
| B-21-17 24CDB | 78-04-28 | 24.0 | 639 | 7.4 | 15 | 200 | 240 | 0 | 4.5 | .03 |
| B-21-17 34ACA | 78-05-03 | 27.0 | 452 | 7.5 | 10 | 160 | 200 | 0 | 3.7 | .09 |
| B-21-17 35CAA | 78-05-03 | 19.5 | 1290 | 7.2 | 41 | 340 | 410 | 0 | 6.8 | 2.7 |
| B-21-18 09BBA | 78-04-26 | 37.5 | 857 | 7.7 | 4.8 | 120 | 150 | 0 | 1.7 | .03 |
| B-21-18 29ABB | 78-04-25 | 32.0 | 674 | 7.8 | 3.8 | 120 | 150 | 0 | 3.8 | .00 |
| B-21-19 07BDB | 78-04-26 | 21.5 | 924 | 7.5 | 14 | 230 | 280 | 0 | 4.4 | .03 |
| B-21-19 08BBD | 78-04-26 | 29.5 | 723 | 7.3 | 22 | 220 | 270 | 0 | .06 | .00 |
| B-22-18 12BDC | 78-05-02 | 17.5 | 1110 | 7.9 | 4.6 | 200 | 240 | 0 | 2.1 | .03 |
| B-24-18 34CAB | 78-04-27 | 21.0 | 914 | 7.3 | 34 | 340 | 420 | 0 | 3.8 | .00 |
| SALT RIVER VALLEY | | | | | | | | | | |
| A-01-07 36DAA2 | 77-12-13 | 22.0 | 1900 | 7.8 | 1.8 | 53 | 65 | 0 | -- | -- |
| SAN FRANCISCO PEAKS | | | | | | | | | | |
| A-20-06 08CAB | 78-06-22 | 11.0 | 250 | 7.0 | 22 | 110 | 140 | 0 | .07 | .25 |
| A-21-04 05DBC2 | 78-06-01 | 15.0 | 1200 | 7.2 | 20 | 160 | 220 | 0 | 07 | .03 |
| A-21-05 03BCC | 78-08-02 | 15.0 | 190 | 6.8 | 23 | 75 | 92 | 0 | .81 | .18 |
| A-21-05 11ABC | 78-08-02 | 8.5 | 260 | 7.3 | 10 | 110 | 130 | 0 | 2.6 | .28 |
| A-21-05N10DDC | 76-08-02 | 26.0 | 250 | 8.9 | .2 | 99 | 94 | 13 | .11 | .03 |
| A-21-06 35CCB | 78-08-10 | 17.0 | 190 | 8.0 | -- | 110 | -- | -- | -- | -- |
| A-21-09 05DDD | 78-09-08 | 22.0 | 380 | 7.3 | -- | 160 | -- | -- | 1.5 | .03 |
| A-21-09 08BCC | 78-09-05 | 18.0 | 400 | 8.0 | -- | 160 | -- | -- | .64 | .03 |
| A-22-03 22ABC | 76-05-22 | 15.5 | 320 | 7.7 | 4.5 | 110 | 140 | 0 | 7.1 | .03 |
| A-22-03 25BBB | 78-05-23 | 14.0 | 275 | 7.5 | 6.1 | 98 | 120 | 0 | 2.6 | .03 |
| A-22-03 26DBC | 78-05-22 | 11.0 | 220 | 7.0 | 9.6 | 49 | 60 | 0 | .60 | .03 |
| A-22-04 26BCB | 78-05-23 | 14.0 | 205 | 7.4 | 6.4 | 62 | 100 | 0 | 1.4 | .09 |
| A-22-04 26CDA | 78-06-01 | 15.0 | 650 | 7.0 | 37 | 169 | 230 | 0 | 9.8 | .37 |
| A-22-04 26DCB | 78-05-23 | 13.0 | 650 | 6.9 | 50 | 210 | 250 | 0 | 8.9 | .06 |
| A-22-04 27DAB | 78-05-24 | 10.5 | 280 | 7.8 | 4.3 | 140 | 170 | 0 | .67 | .03 |
| A-22-04 32ADB | 78-06-01 | 13.0 | 305 | 7.5 | 6.8 | 139 | 170 | 0 | 1.4 | .15 |
| A-22-05 16DBB | 78-06-02 | 15.0 | 195 | 8.0 | 1.6 | 90 | 110 | 0 | .26 | .03 |
| A-22-05 19CCC | 78-05-24 | 9.0 | 150 | 6.8 | 20 | 63 | 77 | 0 | .06 | .12 |
| A-22-05 36CCD | 78-06-06 | 12.0 | 480 | 6.9 | 40 | 164 | 200 | 0 | 2.8 | .21 |
| A-22-08 12BDC | 78-08-23 | 15.0 | 100 | 6.6 | 23 | 46 | 56 | 0 | .13 | .21 |
| A-22-06 23DDC | 78-07-20 | 13.0 | 125 | 8.3 | .8 | 66 | 81 | 0 | 1.1 | -- |
| A-22-08 16DAD | 78-09-08 | 21.0 | 420 | 7.4 | -- | 230 | -- | -- | .55 | .03 |
| A-22-08 23AAB | 78-09-05 | 18.0 | 495 | 7.3 | -- | 260 | -- | -- | .90 | .00 |
| A-22-08 27CAA | 78-09-05 | 18.0 | 470 | 7.8 | -- | 240 | -- | -- | 2.1 | .03 |
| A-23-04 09ADA1 | 78-06-01 | 14.0 | 155 | 6.8 | 13 | 47 | 57 | 0 | .53 | .34 |
| A-23-04 22CAD | 78-05-24 | 10.5 | 150 | 7.2 | 3.7 | 30 | 37 | 0 | .95 | .03 |
| A-23-06 14BAA | 78-07-25 | 11.0 | 110 | 7.1 | 5.8 | 36 | 44 | 0 | .43 | .37 |
| A-23-06 14DBD | 78-08-22 | 10.0 | 140 | 6.6 | 30 | 62 | 75 | 0 | .04 | .15 |
| A-23-06 22BBD | 78-08-17 | 14.0 | 205 | 6.8 | 20 | 66 | 80 | 0 | .10 | -- |
| A-23-06 23CCC | 78-08-22 | 12.0 | 160 | 7.2 | 7.8 | 62 | 75 | 0 | .69 | .09 |
| A-23-06 26BBB | 78-08-22 | 13.0 | 310 | 7.5 | 6.6 | 110 | 130 | 0 | .39 | .06 |
| A-23-06 35ABD | 78-08-18 | 21.0 | 98 | 6.6 | 22 | 45 | 55 | 0 | .03 | -- |
| A-23-07 07ACD | 78-07-25 | 14.0 | 165 | 7.4 | 5.0 | 64 | 76 | 0 | .25 | .25 |
| A-23-07 27CBD | 78-08-31 | 4.5 | 59 | 7.0 | -- | 26 | -- | -- | -- | -- |
| A-24-05 11CAC | 76-07-20 | 24.0 | 170 | 7.8 | 2.4 | 78 | 95 | 0 | .42 | .18 |
| A-25-06 20BBB | 78-08-24 | 16.0 | 725 | 7.4 | 13 | 160 | 200 | 0 | .73 | .09 |
| A-25-06 20BDD | 78-08-24 | 15.0 | 400 | 7.8 | 4.3 | 140 | 170 | 0 | .89 | .25 |
| SAN FRANCISCO RIVER | | | | | | | | | | |
| A-01-29 08DAD | 76-06-26 | 10.0 | 275 | -- | -- | 160 | 190 | -- | .02 | -- |
| A-02-31 11ABD | 78-06-27 | 21.0 | 285 | -- | -- | 140 | 170 | -- | .01 | -- |
| A-03-29 13BBD | 78-06-26 | 12.0 | 516 | -- | -- | 300 | 370 | -- | .05 | -- |
| A-03-29 28BCB | 78-06-28 | 10.0 | 83 | -- | -- | 31 | 38 | -- | .28 | -- |
| A-03-31 21CBD | 78-06-27 | 15.0 | 360 | -- | -- | 160 | 220 | -- | .02 | -- |
| A-03-31 31BDB | 78-06-27 | 14.0 | 395 | -- | -- | 200 | 240 | -- | .41 | -- |
| D-01-31 30ABA | 76-06-15 | 15.0 | 380 | -- | -- | 200 | 240 | -- | .23 | -- |
| D-02-29 28CCA | 78-06-26 | 10.0 | 310 | -- | -- | 170 | 210 | -- | .50 | -- |
| D-02-30 04ACB | 78-06-16 | 14.0 | 392 | -- | -- | 210 | 250 | -- | .25 | -- |
| D-02-30 04ACC | 78-06-16 | 15.0 | 419 | 7.7 | 0.3 | 210 | 260 | -- | .15 | -- |
| D-02-31 08CCA | 78-06-16 | 16.0 | 425 | -- | -- | 220 | 270 | -- | .67 | -- |
| D-03-29 16CDA | 78-06-26 | 12.0 | 595 | -- | -- | 340 | 420 | -- | .04 | -- |
| D-03-31 20DAB | 78-05-30 | 21.0 | 413 | 7.2 | 5.6 | 47 | 57 | -- | .01 | -- |
| D-04-29 12DDA | 78-06-22 | 20.0 | 540 | -- | -- | 160 | 190 | -- | .10 | -- |
| D-04-30 08ADA | 78-06-17 | 17.0 | 660 | -- | -- | 310 | 380 | -- | .16 | -- |
| D-04-30 18CCA | 78-06-22 | 71.0 | 21400 | -- | -- | 110 | 130 | -- | .01 | -- |

WATER-QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978--Continued

| LOCAL IDENTIFIER | DATE OF SAMPLE | HARDNESS (MG/L AS CACO3) | HARDNESS, NONCARBONATE (MG/L CACO3) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) | SODIUM ADSORPTION RATIO | SODIUM PERCENT | POTASSIUM, DISSOLVED (MG/L AS K) | CHLORIDE, DISSOLVED (MG/L AS CL) | SULFATE DISSOLVED (MG/L AS SO4) |
|---|---|---|---|---|---|---|---|---|---|---|
| PUERCO-ZUNI | | | | | | | | | | |
| A-14-26 10CDC | 78-05-12 | 1000 | 500 | 86 | 510 | 7.0 | 52 | 22 | 680 | 650 |
| A-14-29 35CDC | 78-05-11 | 710 | 190 | 46 | 180 | 2.9 | 35 | 22 | 180 | 310 |
| A-14-29 35CDC | 78-09-13 | 700 | 170 | 42 | 180 | 3.0 | 35 | 21 | 170 | 310 |
| SACRAMENTO VALLEY | | | | | | | | | | |
| B-17-17 31BCB | 78-05-04 | 180 | 62 | 20 | 40 | 1.3 | 31 | 5.3 | 61 | 57 |
| B-17-18 12ABD | 78-05-04 | 200 | 59 | 21 | 40 | 1.2 | 30 | 4.6 | 63 | 53 |
| B-17-18 12BCB | 78-05-04 | 170 | 35 | 18 | 34 | 1.1 | 30 | 4.3 | 45 | 29 |
| B-20-18 04BBB | 78-04-27 | 140 | 9 | 14 | 50 | 1.8 | 42 | 6.3 | 39 | 51 |
| B-21-17 11CCA | 78-04-27 | 390 | 130 | 46 | 21 | .5 | 10 | 2.3 | 59 | 36 |
| B-21-17 24CDB | 78-04-28 | 270 | 70 | 26 | 25 | .7 | 17 | 4.9 | 54 | 32 |
| B-21-17 34ACA | 78-05-03 | 170 | 2 | 13 | 24 | .8 | 23 | 7.3 | 27 | 19 |
| B-21-17 35CAA | 78-05-03 | 400 | 63 | 43 | 120 | 2.6 | 39 | 7.4 | 180 | 58 |
| B-21-18 09BBA | 78-04-26 | 160 | 37 | 14 | 80 | 2.8 | 51 | 5.7 | 51 | 130 |
| B-21-18 29ABB | 78-04-25 | 230 | 110 | 36 | 43 | 1.2 | 28 | 2.8 | 76 | 88 |
| B-21-19 07BDB | 78-04-26 | 300 | 67 | 18 | 79 | 2.0 | 36 | 9.9 | 78 | 120 |
| B-21-19 08BBD | 78-04-26 | 180 | 0 | 20 | 77 | 2.5 | 45 | 16 | 70 | 44 |
| B-22-18 12BDC | 78-05-02 | 430 | 230 | 44 | 75 | 1.6 | 27 | 9.1 | 98 | 250 |
| B-24-18 34CAB | 78-04-27 | 390 | 41 | 33 | 62 | 1.4 | 26 | 3.4 | 32 | 110 |
| SALT RIVER VALLEY | | | | | | | | | | |
| A-01-07 36DAA2 | 77-12-13 | 250 | 200 | 15 | 250 | 6.9 | 66 | 20 | 480 | 53 |
| SAN FRANCISCO PEAKS | | | | | | | | | | |
| A-20-06 08CAB | 78-06-22 | 120 | 3 | 11 | 6.0 | .2 | 10 | 1.3 | 2.7 | 14 |
| A-21-04 05DBC2 | 78-06-01 | 490 | 310 | 59 | 40 | .8 | 15 | 1.8 | 82 | 51 |
| A-21-05 03BCC | 78-08-02 | 78 | 3 | 8.7 | 10 | .5 | 22 | .9 | 3.4 | 12 |
| A-21-05 11ABC | 78-08-02 | 110 | 5 | 12 | 12 | .5 | 19 | 2.3 | 5.0 | 14 |
| A-21-05N10DDC | 78-08-02 | 93 | 0 | 13 | 19 | .9 | 30 | 1.6 | 4.4 | 20 |
| A-21-06 35CCB | 78-08-10 | 110 | 0 | 11 | 5.2 | .2 | 10 | 1.2 | 2.2 | 3.8 |
| A-21-09 05DDD | 78-09-06 | 180 | -- | 22 | 8.7 | .3 | 10 | 1.4 | 14 | 4.9 |
| A-21-09 08BCC | 78-09-05 | 200 | -- | 27 | 9.6 | .3 | 9 | 1.2 | 19 | 6.7 |
| A-22-03 22ABC | 78-05-22 | 140 | 29 | 12 | 13 | .5 | 16 | .4 | 9.4 | 14 |
| A-22-03 25BBB | 78-05-23 | 120 | 24 | 9.7 | 10 | .4 | 15 | .3 | 4.4 | 23 |
| A-22-03 26DBC | 78-05-22 | 94 | 45 | 7.1 | 6.0 | .3 | 12 | .7 | 20 | 22 |
| A-22-04 26BCB | 78-05-23 | 86 | 4 | 7.6 | 10 | .5 | 20 | .9 | 4.6 | 6.5 |
| A-22-04 26CDA | 78-06-01 | 250 | 61 | 27 | 36 | 1.0 | 24 | 1.2 | 38 | 41 |
| A-22-04 26DCB | 78-05-23 | 250 | 43 | 25 | 39 | 1.1 | 25 | 1.0 | 28 | 39 |
| A-22-04 27DAB | 78-05-24 | 130 | 0 | 14 | 12 | .5 | 16 | 2.2 | 3.6 | 3.8 |
| A-22-04 32ADB | 78-06-01 | 140 | 0 | 13 | 11 | .4 | 15 | 2.6 | 4.5 | 10 |
| A-22-05 16DBB | 78-06-02 | 88 | 0 | 11 | 6.5 | .3 | 14 | 1.3 | 2.7 | 6.8 |
| A-22-05 19CCC | 78-05-24 | 62 | 0 | 6.0 | 6.5 | .4 | 18 | .4 | 3.1 | 7.7 |
| A-22-05 36CCD | 78-06-06 | 150 | 0 | 16 | 36 | 1.3 | 33 | 2.9 | 32 | 15 |
| A-22-06 12BDC | 78-08-23 | 35 | 0 | 3.8 | 6.6 | .5 | 28 | 2.5 | 1.6 | 5.1 |
| A-22-06 23DDC | 78-07-20 | 65 | 0 | 7.2 | 6.9 | .4 | 18 | 2.8 | 2.7 | 6.8 |
| A-22-08 16DAD | 78-09-06 | 240 | -- | 23 | 10 | .3 | 8 | 3.7 | 5.1 | 3.0 |
| A-22-08 23AAB | 78-09-05 | 280 | -- | 31 | 6.9 | .2 | 5 | 1.7 | 6.5 | 6.6 |
| A-22-08 27CAA | 78-09-05 | 260 | -- | 30 | 6.3 | .2 | 5 | 1.8 | 7.5 | 3.9 |
| A-23-04 09ADA1 | 78-06-01 | 55 | 8 | 4.9 | 7.5 | .4 | 21 | 4.7 | 5.0 | 16 |
| A-23-04 22CAD | 78-05-24 | 56 | 25 | 3.2 | 8.3 | .5 | 23 | 4.4 | 6.8 | 22 |
| A-23-06 14BAA | 78-07-25 | 49 | 12 | 3.9 | 4.1 | .3 | 15 | 2.3 | 2.1 | 13 |
| A-23-06 14DBD | 78-08-22 | 53 | 0 | 5.5 | 6.9 | .4 | 21 | 2.5 | 2.3 | 4.5 |
| A-23-06 22BBD | 78-08-17 | 78 | 12 | 7.4 | 13 | .6 | 26 | .8 | 20 | 13 |
| A-23-06 23CCC | 78-08-22 | 62 | 0 | 5.3 | 3.9 | .2 | 12 | 2.7 | 3.3 | 9.8 |
| A-23-06 26BBB | 78-08-22 | 98 | 0 | 11 | 23 | 1.0 | 34 | 1.3 | 21 | 12 |
| A-23-06 35ABD | 78-08-18 | 37 | 0 | 4.1 | 5.1 | .4 | 22 | 2.5 | 1.2 | 5.3 |
| A-23-07 07ACD | 78-07-25 | 74 | 10 | 7.7 | 6.0 | .3 | 15 | 2.1 | 3.2 | 9.2 |
| A-23-07 27CBD | 78-08-31 | 23 | 0 | 2.4 | 2.3 | .2 | 16 | 2.3 | .5 | 2.7 |
| A-24-05 11CAC | 78-07-20 | 73 | 0 | 9.8 | 8.6 | .4 | 20 | 3.0 | 4.8 | 5.0 |
| A-25-06 20BBB | 78-08-24 | 320 | 160 | 28 | 28 | .7 | 16 | 2.9 | 34 | 140 |
| A-25-06 20BDD | 78-08-24 | 170 | 26 | 16 | 16 | .5 | 17 | 2.5 | 29 | 18 |
| SAN FRANCISCO RIVER | | | | | | | | | | |
| A-01-29 08DAD | 78-06-26 | 150 | 0 | 19 | 5.6 | .2 | 7 | .7 | 1.5 | 1.9 |
| A-02-31 11ABD | 78-06-27 | 140 | 0 | 13 | 11 | .4 | 15 | .6 | 2.2 | 13 |
| A-03-29 13BBD | 78-06-26 | 310 | 6 | 43 | 9.6 | .2 | 6 | 2.4 | 4.9 | 11 |
| A-03-29 28BCB | 78-06-26 | 36 | 5 | 3.7 | 3.0 | .2 | 15 | .8 | 1.2 | 4.0 |
| A-03-31 21CBD | 78-06-27 | 170 | 0 | 13 | 18 | .6 | 19 | 1.1 | 3.3 | 14 |
| A-03-31 31BDB | 78-06-27 | 190 | 0 | 16 | 18 | .6 | 17 | 1.0 | 3.7 | 18 |
| D-01-31 30ABA | 78-06-15 | 160 | 0 | 12 | 26 | .9 | 26 | 2.7 | 5.7 | 6.3 |
| D-02-29 28CCA | 78-06-26 | 180 | 6 | 25 | 7.6 | .2 | 8 | 1.4 | 2.8 | 7.1 |
| D-02-30 04ACB | 78-06-16 | 190 | 0 | 18 | 13 | .4 | 13 | 2.6 | 4.4 | 7.2 |
| D-02-30 04ACC | 78-06-16 | 210 | 0 | 19 | 14 | .4 | 13 | 2.7 | 4.8 | 7.1 |
| D-02-31 08CCA | 78-06-16 | 220 | 0 | 22 | 14 | .4 | 12 | 2.8 | 5.2 | 11 |
| D-03-29 16CDA | 78-06-26 | 360 | 15 | 29 | 11 | .3 | 6 | .9 | 5.7 | 15 |
| D-03-31 20DAB | 78-05-30 | 170 | 120 | 13 | 11 | .4 | 12 | 8.4 | 6.8 | 130 |
| D-04-29 12DDA | 78-06-22 | 180 | 24 | 14 | 48 | 1.6 | 36 | 3.3 | 69 | 27 |
| D-04-30 08ADA | 78-06-17 | 330 | 22 | 29 | 30 | .7 | 16 | 3.3 | 16 | 50 |
| D-04-30 18CCA | 78-06-22 | 2300 | 2200 | 22 | 3300 | 30 | 74 | 220 | 7000 | 60 |

WATER-QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978--Continued

| LOCAL IDENT-I-FIER | DATE OF SAMPLE | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | ARSENIC DIS-SOLVED (UG/L AS AS) | BORON, DIS-SOLVED (UG/L AS B) | IRON, DIS-SOLVED (UG/L AS FE) | MANGA-NESE, DIS-SOLVED (UG/L AS MN) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER AC-FT) |
|---|---|---|---|---|---|---|---|---|---|
| PUERCO-ZUNI | | | | | | | | | |
| A-14-26 10CDC | 78-05-12 | 2.0 | 12 | -- | 600 | 100 | 110 | 2520 | 3.43 |
| A-14-29 35CDC | 78-05-11 | 3.4 | 11 | -- | 500 | 1700 | 40 | 1280 | 1.74 |
| A-14-29 35CDC | 78-09-13 | 3.4 | 11 | -- | 580 | 1500 | 40 | 1270 | 1.73 |
| SACRAMENTO VALLEY | | | | | | | | | |
| B-17-17 31BCB | 78-05-04 | 1.0 | 39 | -- | 110 | 20 | 10 | 348 | .47 |
| B-17-18 12ABD | 78-05-04 | 1.3 | 32 | -- | 120 | 10 | 0 | 354 | .48 |
| B-17-18 12BCB | 78-05-04 | 1.3 | 31 | -- | 120 | 10 | 0 | 293 | .40 |
| B-20-18 04BBB | 78-04-27 | .6 | 42 | -- | 110 | 0 | 0 | 330 | .45 |
| B-21-17 11CCA | 78-04-27 | .4 | 69 | -- | 80 | 10 | 0 | 518 | .70 |
| B-21-17 24CDB | 78-04-28 | .9 | 56 | -- | 110 | 10 | 10 | 401 | .55 |
| B-21-17 34ACA | 78-05-03 | .5 | 77 | -- | 80 | 10 | 0 | 328 | .45 |
| B-21-17 35CAA | 78-05-03 | .8 | 67 | -- | 550 | 10 | 0 | 801 | 1.09 |
| B-21-18 09BBA | 78-04-26 | .5 | 28 | -- | 120 | 0 | 0 | 432 | .59 |
| B-21-18 29ABB | 78-04-25 | .6 | 23 | -- | 100 | 110 | 0 | 394 | .54 |
| B-21-19 07BDB | 78-04-26 | .8 | 54 | -- | 320 | 10 | 0 | 607 | .83 |
| B-21-19 08BBD | 78-04-26 | .9 | 27 | -- | 280 | 10 | 110 | 430 | .58 |
| B-22-18 12BDC | 78-05-02 | .8 | 42 | -- | 160 | 10 | 10 | 747 | 1.02 |
| B-24-18 34CAB | 78-04-27 | .6 | 13 | 2 | 70 | 20 | 240 | 578 | .79 |
| SALT RIVER VALLEY | | | | | | | | | |
| A-01-07 36DAA2 | 77-12-13 | .8 | 2.2 | -- | 520 | 10 | 70 | 930 | 1.26 |
| SAN FRANCISCO PEAKS | | | | | | | | | |
| A-20-06 08CAB | 78-06-22 | .1 | 32 | -- | 10 | 50 | 100 | 166 | .23 |
| A-21-04 05DBC2 | 78-06-01 | .0 | 19 | -- | 20 | 10 | 100 | 758 | 1.03 |
| A-21-05 03BCC | 78-08-02 | .1 | 24 | -- | 20 | <10 | <1 | 125 | .17 |
| A-21-05 11ABC | 78-08-02 | .1 | 21 | -- | 40 | <10 | <1 | 167 | .23 |
| A-21-05N10DDC | 78-08-02 | .1 | 27 | -- | 40 | <10 | 2 | 161 | .22 |
| A-21-06 35CCB | 78-08-10 | .1 | 24 | 8 | -- | <10 | <1 | 138 | .17 |
| A-21-09 05DDD | 78-09-06 | .1 | 14 | 1 | 20 | 20 | 0 | -- | .27 |
| A-21-09 08BCC | 78-09-05 | .1 | 12 | 1 | 30 | 10 | 0 | -- | .30 |
| A-22-03 22ABC | 78-05-22 | .1 | 29 | -- | 9 | 40 | 10 | 216 | .29 |
| A-22-03 25BBB | 78-05-23 | .1 | 31 | -- | 30 | 20 | 0 | 182 | .25 |
| A-22-03 26DBC | 78-05-22 | .1 | 25 | -- | 20 | 70 | 50 | 139 | .19 |
| A-22-04 26BCB | 78-05-23 | .1 | 31 | -- | 20 | 20 | 0 | 139 | .19 |
| A-22-04 26CDA | 78-06-01 | .1 | 40 | -- | 280 | 10 | 10 | 398 | .54 |
| A-22-04 26DCB | 78-05-23 | .1 | 40 | -- | 310 | 20 | 0 | 393 | .53 |
| A-22-04 27DAB | 78-05-24 | .0 | 29 | -- | 6 | 30 | 0 | 180 | .24 |
| A-22-04 32ADB | 78-06-01 | .1 | 30 | -- | 7 | 0 | 10 | 194 | .26 |
| A-22-05 16DBB | 78-06-02 | .1 | 22 | -- | 40 | 70 | 10 | 123 | .17 |
| A-22-05 19CCC | 78-05-24 | .1 | 28 | -- | 10 | 120 | 0 | 105 | .14 |
| A-22-05 36CCD | 78-06-06 | .0 | 19 | -- | 70 | 0 | 220 | 267 | .36 |
| A-22-06 12BDC | 78-08-23 | .1 | 44 | -- | 40 | <10 | 2 | 100 | .14 |
| A-22-06 23DDC | 78-07-20 | .1 | 34 | -- | 8 | 50 | 0 | 119 | .16 |
| A-22-08 16DAD | 78-09-06 | .1 | 38 | 1 | 40 | 20 | 0 | -- | .37 |
| A-22-08 23AAB | 78-09-05 | .1 | 17 | 2 | 40 | 20 | 0 | -- | .37 |
| A-22-08 27CAA | 78-09-05 | .1 | 22 | 1 | 20 | 50 | 0 | -- | .37 |
| A-23-04 09ADA1 | 78-06-01 | .1 | 41 | -- | 30 | 0 | 0 | 124 | .17 |
| A-23-04 22CAD | 78-05-24 | .2 | 47 | -- | 10 | 60 | 0 | 131 | .18 |
| A-23-06 14BAA | 78-07-25 | .1 | 32 | -- | 10 | 100 | 0 | 95 | .13 |
| A-23-06 14DBD | 78-08-22 | .1 | 49 | -- | 20 | 20 | <1 | 120 | .16 |
| A-23-06 22BBD | 78-08-17 | .1 | 26 | -- | 10 | 20 | 10 | 139 | .19 |
| A-23-06 23CCC | 78-08-22 | .1 | 24 | -- | 8 | 20 | 20 | 105 | .14 |
| A-23-06 26BBB | 78-08-22 | .2 | 30 | -- | 10 | 20 | 2 | 185 | .25 |
| A-23-06 35ABD | 78-08-18 | .1 | 33 | -- | 8 | 20 | 10 | 87 | .12 |
| A-23-07 07ACD | 78-07-25 | .1 | 35 | -- | 20 | 50 | 10 | 120 | .16 |
| A-23-07 27CBD | 78-08-31 | .3 | 41 | 2 | -- | 30 | 0 | 73 | .10 |
| A-24-05 11CAC | 78-07-20 | .1 | 33 | -- | 80 | 220 | 0 | 126 | .17 |
| A-25-06 20BBB | 78-08-24 | .4 | 34 | -- | 70 | <10 | 5 | 451 | .61 |
| A-25-06 20BDD | 78-08-24 | .2 | 32 | -- | 140 | <10 | 1 | 242 | .33 |
| SAN FRANCISCO RIVER | | | | | | | | | |
| A-01-29 08DAD | 78-06-26 | .1 | 53 | -- | 6 | 120 | -- | 206 | .27 |
| A-02-31 11ABD | 78-06-27 | .1 | 37 | -- | 6 | 40 | -- | 195 | .26 |
| A-03-29 13BBD | 78-06-26 | .2 | 69 | -- | 60 | 140 | -- | 376 | .50 |
| A-03-29 28BCB | 78-06-26 | .0 | 17 | -- | 6 | 370 | -- | 58 | .08 |
| A-03-31 21CBD | 78-06-27 | .3 | 34 | -- | 10 | 10 | -- | 239 | .30 |
| A-03-31 31BDB | 78-06-27 | .2 | 34 | -- | 10 | 20 | -- | 261 | .34 |
| D-01-31 30ABA | 78-06-15 | .2 | 41 | -- | 10 | 10 | -- | 257 | .34 |
| D-02-29 28CCA | 78-06-26 | .1 | 58 | -- | 9 | 100 | -- | 238 | .31 |
| D-02-30 04ACB | 78-06-16 | .3 | 53 | -- | 9 | 80 | -- | 270 | .36 |
| D-02-30 04ACC | 78-06-16 | .3 | 67 | -- | 10 | 20 | -- | 295 | .38 |
| D-02-31 08CCA | 78-06-16 | .4 | 57 | -- | 20 | 10 | -- | 299 | .38 |
| D-03-29 16CDA | 78-06-26 | .9 | 35 | -- | 10 | 90 | -- | 401 | .53 |
| D-03-31 20DAB | 78-05-30 | .2 | 42 | -- | 20 | 30 | -- | 286 | .42 |
| D-04-29 12DDA | 78-06-22 | .8 | 38 | -- | 50 | 10 | -- | 343 | .47 |
| D-04-30 08ADA | 78-06-17 | .4 | 90 | -- | 20 | 90 | -- | 493 | .66 |
| D-04-30 18CCA | 78-06-22 | 3.6 | 110 | -- | 1400 | 40 | -- | 11700 | 18.9 |

WATER-QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978--Continued

| LOCAL IDENT-I-FIER | DATE OF SAMPLE | TEMPER-ATURE (DEG C) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) | ALKA-LINITY (MG/L AS CACO3) | BICAR-BONATE (MG/L AS HCO3) | CAR-BONATE (MG/L AS CO3) | NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) | PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4) |
|---|---|---|---|---|---|---|---|---|---|---|
| SAN SIMON WASH | | | | | | | | | | |
| C-18-01 28ABB | 78-08-01 | 30.0 | 780 | 7.9 | 4.0 | 160 | 200 | 0 | 3.7 | -- |
| C-19-02 03ADD | 78-09-27 | 28.0 | 4900 | -- | -- | 330 | 400 | -- | 4.5 | -- |
| D-17-02 33DCA | 78-05-18 | 29.0 | 430 | -- | -- | 160 | 200 | -- | 1.5 | -- |
| D-17-03 08CAD | 78-05-08 | 26.0 | 420 | -- | -- | 150 | 180 | -- | 1.3 | -- |
| D-19-01 05CBA | 78-03-24 | 46.0 | 640 | 7.7 | 7.0 | 180 | 220 | 0 | -- | -- |
| D-19-01 07DBB | 78-03-24 | 44.0 | 480 | 8.0 | 5.5 | 180 | 220 | 0 | -- | -- |
| D-19-01 08DAA | 78-09-11 | 26.0 | 460 | -- | -- | 170 | 210 | -- | 1.5 | -- |
| D-19-01 19AAA | 78-03-24 | 27.0 | 580 | 7.9 | 4.2 | 170 | 210 | 0 | -- | -- |
| ST. JOHNS | | | | | | | | | | |
| A-12-28 19BAD | 78-05-11 | 19.5 | 3400 | 6.8 | 155 | 500 | 610 | 0 | .02 | .03 |
| A-13-27 13A | 78-05-11 | 29.0 | 1850 | 8.5 | 2.6 | 430 | 500 | 9 | .09 | .03 |
| | 78-09-14 | 17.0 | 2000 | 8.4 | 4.1 | 550 | 600 | 20 | .06 | .03 |
| A-14-27 35BDC | 78-09-14 | 17.5 | 2200 | 7.1 | 46 | 300 | 360 | 0 | .64 | .03 |
| UPPER SAN PEDRO BASIN | | | | | | | | | | |
| D-20-20 18DBC | 78-04-19 | 22.0 | 580 | 7.5 | 11 | 180 | 220 | -- | -- | -- |
| D-21-20 05ABD | 78-04-19 | 23.0 | 310 | 7.5 | 9.6 | 160 | 190 | -- | -- | -- |
| D-21-20 34DCC | 78-04-19 | 23.0 | 350 | 7.5 | 11 | 170 | 210 | -- | -- | -- |
| D-21-21 31BDC | 78-04-19 | 22.0 | 320 | 7.6 | 8.0 | 160 | 200 | -- | -- | -- |
| D-22-20 24AAA | 78-04-20 | -- | 360 | 7.4 | 14 | 180 | 220 | -- | -- | -- |
| D-22-21 30AAA | 78-04-20 | -- | 353 | 7.5 | 12 | 190 | 230 | -- | -- | -- |
| D-22-22 08C | 78-04-20 | -- | 410 | 8.3 | 1.7 | 170 | 210 | -- | -- | -- |
| D-23-22 29DBD | 78-04-20 | -- | 334 | 7.5 | 9.6 | 160 | 190 | -- | -- | -- |
| UPPER VERDE VALLEY | | | | | | | | | | |
| A-11-06 10A UNSURV | 77-12-14 | 39.0 | 4600 | 6.5 | 769 | 1250 | 1520 | 0 | .00 | .06 |
| A-12-05 02C UNSURV | 77-12-13 | 7.5 | 420 | 8.1 | 3.2 | 210 | 250 | 0 | 1.2 | .00 |
| A-12-05 10A UNSURV | 77-12-13 | 11.0 | 900 | 7.3 | 43 | 430 | 530 | 0 | .00 | .00 |
| A-12-05 24B UNSURV | 77-12-13 | 21.0 | 690 | 7.4 | 25 | 330 | 400 | 0 | .41 | .06 |
| A-12-06 01B UNSURV | 77-12-14 | 18.0 | 540 | 7.2 | 33 | 270 | 330 | 0 | .15 | .00 |
| A-12-06 11D UNSURV | 77-12-14 | 4.0 | 420 | 7.5 | 11 | 180 | 220 | 0 | .00 | .31 |
| A-12-07 14D UNSURV | 78-05-24 | 22.0 | 700 | 6.7 | 153 | 390 | 480 | 0 | .14 | .03 |
| A-12-07 21D UNSURV | 78-05-24 | 16.0 | 560 | 7.3 | 30 | 300 | 370 | 0 | .16 | .03 |
| A-12-07 22C UNSURV | 78-05-24 | 19.0 | 510 | 8.2 | 3.3 | 270 | 330 | 0 | .10 | .03 |
| A-13-05 12CCA | 77-11-21 | -- | 1250 | 7.7 | 10 | 260 | 320 | 0 | .34 | .03 |
| A-13-05 17CAA | 77-11-21 | -- | 2600 | -- | -- | 480 | 590 | -- | 2.0 | .15 |
| A-13-05 18CBB | 77-12-13 | 18.5 | 675 | 7.4 | 20 | 260 | 320 | 0 | .77 | .00 |
| A-13-06 29DBB | 78-02-15 | 25.0 | 400 | 7.4 | 15 | 200 | 240 | 0 | 1.6 | .06 |
| A-14-02H24ADD | 78-04-20 | 13.0 | 440 | 7.0 | 42 | 210 | 260 | 0 | .52 | .00 |
| A-14-03 04AAA | 78-04-18 | 14.5 | 660 | 7.1 | 44 | 290 | 350 | 0 | 1.4 | .00 |
| A-14-03 17DDD1 | 78-03-16 | -- | 700 | 7.4 | 24 | 300 | 370 | 0 | 2.3 | .12 |
| A-14-03 21BAD | 78-03-16 | 16.0 | 580 | 6.9 | 40 | 160 | 200 | 0 | 16 | .06 |
| A-14-05 02BAB1 | 78-01-24 | 19.0 | 650 | 7.2 | 40 | 330 | 400 | 0 | .23 | .06 |
| A-14-05 02CAC | 78-02-09 | 23.0 | 675 | 7.1 | 51 | 330 | 400 | 0 | .25 | .00 |
| A-14-05 04AAA | 78-03-23 | 18.0 | 475 | 7.6 | 12 | 250 | 300 | 0 | .43 | .06 |
| A-15-02 02D UNSURV | 78-04-20 | 16.0 | 365 | 7.6 | 10 | 210 | 250 | -- | .91 | .12 |
| A-15-03 05BAA | 78-02-24 | 29.0 | 580 | 7.2 | 30 | 250 | 300 | 0 | 1.4 | .03 |
| | 78-04-04 | 29.0 | 650 | 7.3 | 21 | 250 | 300 | 0 | 1.5 | .03 |
| A-15-03 11DAD | 78-04-05 | -- | 825 | 7.4 | 29 | 380 | 460 | 0 | .26 | .03 |
| A-15-03 13CDA | 77-12-20 | 20.5 | 490 | 7.6 | 11 | 220 | 270 | 0 | .51 | .06 |
| A-15-03 15CCD | 78-03-23 | -- | 540 | 7.6 | 14 | 300 | 360 | 0 | .13 | .00 |
| A-15-03 20BAB | 78-04-05 | -- | 625 | 7.4 | 21 | 270 | 330 | 0 | .63 | .03 |
| A-15-03 23BDD | 78-03-23 | 23.5 | 440 | 7.9 | 5.0 | 210 | 250 | 0 | .28 | .00 |
| A-15-05 20ABB | 78-03-23 | 19.0 | 600 | 7.3 | 27 | 280 | 340 | 0 | 1.7 | .28 |
| A-15-05 24DCA | 78-03-23 | 19.0 | 675 | 7.6 | 16 | 320 | 390 | 0 | 2.1 | .00 |
| A-15-05 35ACD | 78-04-19 | 22.0 | 750 | -- | -- | 360 | 440 | -- | .20 | .00 |
| A-15-05 36CCB1 | 78-02-02 | 20.0 | 790 | 7.3 | 33 | 340 | 410 | 0 | .24 | .03 |
| A-15-05 36CCC | 78-02-02 | 16.0 | 675 | 7.3 | 31 | 320 | 390 | 0 | .02 | .03 |
| A-15-05 36DBB | 78-01-24 | 20.5 | 950 | 7.3 | 38 | 390 | 470 | 0 | .15 | .06 |
| A-15-06 29CAA | 78-04-20 | 21.0 | 600 | -- | -- | 300 | 370 | -- | .28 | .03 |
| A-15-06 35CAC | 78-05-03 | 21.0 | 450 | 7.8 | 5.3 | 170 | 210 | 0 | .26 | .03 |
| A-16-02 12CAD2 | 78-02-08 | 27.0 | 650 | 7.4 | 20 | 254 | 310 | 0 | -- | .06 |
| A-16-03 17DBC | 78-02-08 | 18.5 | 520 | 7.5 | 15 | 250 | 300 | 0 | .21 | .03 |
| A-16-03 21BBB | 78-02-09 | 19.0 | 500 | 7.4 | 19 | 250 | 300 | 0 | .25 | .06 |
| A-16-03 31DDC1 | 77-12-20 | 22.0 | 625 | 7.2 | 28 | 230 | 280 | 0 | 1.5 | .03 |
| A-16-03 33DCD | 78-02-24 | -- | -- | -- | -- | 250 | 300 | -- | .42 | .03 |
| A-16-03 33DDD | 78-02-24 | -- | 560 | 7.8 | 8.4 | 270 | 330 | 0 | .33 | .03 |
| A-17-04 15CDC | 78-04-03 | -- | 900 | 7.7 | 8.6 | 220 | 270 | 0 | 23 | .03 |
| A-18-07 15CCC2 | 77-10-31 | 13.0 | 240 | 8.2 | 1.6 | 130 | 160 | 0 | .47 | .06 |
| A-20-07 28BCC | 78-04-18 | -- | 440 | 7.7 | 7.7 | 200 | 240 | 0 | .52 | .00 |
| A-20-07 30BBB | 78-04-12 | 11.5 | 440 | 7.8 | 6.3 | 210 | 250 | 0 | 1.4 | .03 |
| A-20-08 19ABA | 77-11-17 | 10.5 | 270 | 7.8 | 4.6 | 150 | 180 | 0 | .34 | .03 |
| YUMA | | | | | | | | | | |
| C-10-24 16BAA2 | 78-02-07 | -- | 1180 | 7.8 | 6.8 | 221 | 270 | 0 | -- | -- |

WATER-QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978--Continued

| LOCAL IDENT-I-FIER | DATE OF SAMPLE | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | SODIUM PERCENT | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | SULFATE DIS-SOLVED (MG/L AS SO4) |
|---|---|---|---|---|---|---|---|---|---|---|
| SAN SIMON WASH | | | | | | | | | | |
| C-18-01 28ABB | 78-08-01 | 26 | 0 | 2.3 | 150 | 13 | 91 | 3.4 | 68 | 63 |
| C-19-02 03ADD | 78-09-27 | 810 | 480 | 100 | 1400 | 21 | 79 | 11 | 2100 | 850 |
| D-17-02 33DCA | 78-05-18 | 8 | 0 | .0 | 97 | 15 | 96 | 1.4 | 19 | 18 |
| D-17-03 08CAD | 78-05-08 | 25 | 0 | .4 | 99 | 8.6 | 89 | 1.0 | 18 | 35 |
| D-19-01 05CBA | 78-03-24 | 26 | 0 | 1.5 | 110 | 9.3 | 89 | 3.2 | 31 | 26 |
| D-19-01 07DBB | 78-03-24 | 25 | 0 | 1.2 | 110 | 9.5 | 89 | 3.2 | 31 | 30 |
| D-19-01 08DAA | 78-09-11 | 42 | 0 | 2.3 | 94 | 6.3 | 82 | 3.3 | 26 | 22 |
| D-19-01 19AAA | 78-03-24 | 30 | 0 | 1.9 | 110 | 8.8 | 86 | 2.6 | 33 | 24 |
| ST. JOHNS | | | | | | | | | | |
| A-12-28 19BAD | 78-05-11 | 1100 | 560 | 69 | 360 | 4.8 | 42 | 27 | 420 | 650 |
| A-13-27 13A | 78-05-11 | 210 | 0 | 22 | 360 | 11 | 78 | 7.8 | 120 | 370 |
| | 78-09-14 | 210 | 0 | 20 | 390 | 12 | 80 | 7.8 | 110 | 350 |
| A-14-27 35BDC | 78-09-14 | 280 | 0 | 31 | 330 | 8.5 | 70 | 15 | 220 | 410 |
| UPPER SAN PEDRO BASIN | | | | | | | | | | |
| D-20-20 18DBC | 78-04-19 | 300 | 120 | 21 | 12 | .3 | 6 | 2.5 | 5.8 | 110 |
| D-21-20 05ABD | 78-04-19 | 140 | 0 | 5.9 | 12 | .4 | 16 | 1.1 | 4.6 | 3.9 |
| D-21-20 34DCC | 78-04-19 | 160 | 0 | 11 | 16 | .6 | 18 | .9 | 7.2 | 9.0 |
| D-21-21 31BDC | 78-04-19 | 130 | 0 | 11 | 22 | .8 | 27 | .9 | 3.5 | 6.4 |
| D-22-20 24AAA | 78-04-20 | 180 | 0 | 10 | 6.8 | .3 | 10 | .7 | 3.2 | 7.5 |
| D-22-21 30AAA | 78-04-20 | 180 | 0 | 8.1 | 12 | .4 | 13 | .8 | 4.5 | 7.8 |
| D-22-22 08C | 78-04-20 | 15 | 0 | 1.0 | 89 | 10 | 92 | 1.3 | 5.0 | 28 |
| D-23-22 29DBD | 78-04-20 | 140 | 0 | 6.3 | 18 | .7 | 22 | 1.6 | 6.6 | 11 |
| UPPER VERDE VALLEY | | | | | | | | | | |
| A-11-06 10A UNSURV | 77-12-14 | 450 | 0 | 42 | 1000 | 21 | 81 | 39 | 570 | 590 |
| A-12-05 02C UNSURV | 77-12-13 | 240 | 35 | 28 | 19 | .5 | 14 | 3.2 | 7.6 | 24 |
| A-12-05 10A UNSURV | 77-12-13 | 500 | 67 | 66 | 30 | .6 | 11 | 1.6 | 13 | 90 |
| A-12-05 24B UNSURV | 77-12-13 | 320 | 0 | 40 | 38 | .9 | 21 | 2.4 | 22 | 37 |
| A-12-06 01B UNSURV | 77-12-14 | 260 | 0 | 27 | 25 | .7 | 17 | 2.1 | 16 | 11 |
| A-12-06 11D UNSURV | 77-12-14 | 180 | 2 | 14 | 20 | .6 | 19 | 3.3 | 14 | 18 |
| A-12-07 14D UNSURV | 78-05-24 | 410 | 12 | 39 | 12 | .3 | 6 | 1.8 | 8.3 | 27 |
| A-12-07 21D UNSURV | 78-05-24 | 310 | 9 | 37 | 18 | .4 | 11 | 1.8 | 13 | 8.5 |
| A-12-07 22C UNSURV | 78-05-24 | 270 | 0 | 33 | 11 | .3 | 8 | 3.2 | 7.1 | 4.8 |
| A-13-05 12CCA | 77-11-21 | 830 | 570 | 110 | 9.4 | .1 | 2 | 5.1 | 5.0 | 540 |
| A-13-05 17CAA | 77-11-21 | 1200 | 760 | 210 | 240 | 3.0 | 30 | 4.6 | 290 | 770 |
| A-13-05 18CBB | 77-12-13 | 320 | 55 | 31 | 28 | .7 | 16 | 3.0 | 19 | 79 |
| A-13-06 29DBB | 78-02-15 | 160 | 0 | 19 | 30 | 1.0 | 29 | 4.4 | 13 | 7.5 |
| A-14-02H24ADD | 78-04-20 | 200 | 0 | 17 | 25 | .8 | 19 | 23 | 13 | 33 |
| A-14-03 04AAA | 78-04-18 | -- | -- | -- | 35 | -- | 2 | 13 | 21 | 63 |
| A-14-03 17DDD1 | 78-03-16 | 340 | 41 | 29 | 30 | .7 | 16 | 2.0 | 23 | 61 |
| A-14-03 21BAD | 78-03-16 | 250 | 84 | 16 | 27 | .7 | 19 | .6 | 17 | 62 |
| A-14-05 02BAB1 | 78-01-24 | 300 | 0 | 31 | 33 | .8 | 19 | 4.4 | 20 | 11 |
| A-14-05 02CAC | 78-02-09 | 290 | 0 | 29 | 29 | .7 | 17 | 4.4 | 25 | 9.3 |
| A-14-05 04AAA | 78-03-23 | 250 | 0 | 28 | 13 | .4 | 10 | 2.3 | 9.7 | 4.5 |
| A-15-02 02D UNSURV | 78-04-20 | 230 | 26 | 27 | 6.4 | .2 | 6 | 1.4 | 3.6 | 31 |
| A-15-03 05BAA | 78-02-24 | 330 | 85 | 35 | 15 | .4 | 9 | 1.0 | -- | -- |
| | 78-04-04 | 320 | 70 | 35 | 13 | .3 | 8 | 1.0 | 18 | 64 |
| A-15-03 11DAD | 78-04-05 | 370 | 0 | 63 | 35 | .8 | 17 | 1.3 | 18 | 43 |
| A-15-03 13CDA | 77-12-20 | 240 | 22 | 39 | 15 | .4 | 12 | 1.7 | 24 | 11 |
| A-15-03 15CCD | 78-03-23 | 290 | 0 | 33 | 18 | .5 | 12 | 1.4 | 13 | 6.6 |
| A-15-03 20BAB | 78-04-05 | 310 | 35 | 36 | 9.2 | .2 | 6 | 1.0 | 6.7 | 28 |
| A-15-03 23BDD | 78-03-23 | 220 | 13 | 33 | 10 | .3 | 9 | 1.2 | 11 | 7.2 |
| A-15-05 20ABB | 78-03-23 | 240 | 0 | 28 | 38 | 1.1 | 25 | 6.8 | 16 | 10 |
| A-15-05 24DCA | 78-03-23 | 280 | 0 | 35 | 44 | 1.1 | 25 | 5.6 | 22 | 18 |
| A-15-05 35ACD | 78-04-19 | 330 | 0 | 32 | 38 | .9 | 20 | 3.9 | 28 | 9.3 |
| A-15-05 36CCB1 | 78-02-02 | 310 | 0 | 30 | 33 | .8 | 18 | 3.7 | 28 | 15 |
| A-15-05 36DCC | 78-02-02 | 290 | 0 | 28 | 32 | .8 | 19 | 4.7 | 24 | 11 |
| A-15-05 36DBB | 78-01-24 | 350 | 0 | 34 | 42 | 1.0 | 20 | 4.2 | 25 | 13 |
| A-15-06 29CAA | 78-04-20 | 280 | 0 | 31 | 21 | .5 | 14 | 6.9 | 13 | 9.3 |
| A-15-06 35CAC | 78-05-03 | 170 | 2 | 23 | 6.7 | .2 | 8 | 2.0 | 3.9 | 2.6 |
| A-16-02 12CAD2 | 78-02-08 | 310 | 53 | 28 | 26 | .6 | 15 | 1.6 | 22 | 57 |
| A-16-03 17DBC | 78-02-08 | 250 | 7 | 27 | 14 | .4 | 11 | 2.1 | 19 | 6.9 |
| A-16-03 21BBB | 78-02-09 | 230 | 0 | 26 | 23 | .7 | 18 | 2.1 | 16 | 10 |
| A-16-03 31DDC1 | 77-12-20 | 320 | 90 | 37 | 13 | .3 | 8 | 1.3 | 21 | 77 |
| A-16-03 33DCD | 78-02-24 | 260 | 14 | 37 | 15 | .4 | 11 | 2.0 | -- | -- |
| A-16-03 33DDD | 78-02-24 | 300 | 26 | 32 | 16 | .4 | 10 | 2.1 | -- | -- |
| A-17-04 15CDC | 78-04-03 | 410 | 180 | 41 | 16 | .3 | 8 | 1.7 | 90 | 12 |
| A-18-07 15CCC2 | 77-10-31 | 130 | 0 | 17 | 6.0 | .2 | 9 | 1.2 | 1.8 | 3.1 |
| A-20-07 28BCC | 78-04-18 | 200 | 1 | 22 | 5.6 | .1 | 4 | .5 | 5.3 | 1.8 |
| A-20-07 30BBB | 78-04-12 | 200 | 0 | 22 | 4.2 | .1 | 4 | .7 | 2.1 | 3.0 |
| A-20-08 19ABA | 77-11-17 | 160 | 8 | 19 | 2.3 | .1 | 3 | .4 | 1.1 | 3.6 |
| YUMA | | | | | | | | | | |
| C-10-24 16BAA2 | 78-02-07 | 305 | 84 | 24 | 130 | 3.2 | 46 | 4.1 | 180 | 115 |

WATER-QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978--Continued

| LOCAL IDENT-I-FIER | DATE OF SAMPLE | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | ARSENIC DIS-SOLVED (UG/L AS AS) | BORON, DIS-SOLVED (UG/L AS B) | IRON, DIS-SOLVED (UG/L AS FE) | MANGA-NESE, DIS-SOLVED (UG/L AS MN) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER AC-FT) |
|---|---|---|---|---|---|---|---|---|---|
| SAN SIMON | | | | | | | | | |
| C-18-01 28ABB | 78-08-01 | 2.9 | 32 | -- | 450 | 170 | 4 | 444 | .60 |
| C-19-02 03ADD | 78-09-27 | 1.4 | 35 | -- | 1400 | 100 | 20 | 4880 | 6.64 |
| D-17-02 33DCA | 78-05-18 | 2.1 | 29 | -- | 280 | 100 | 0 | 275 | .37 |
| D-17-03 08CAD | 78-05-08 | 1.5 | 19 | -- | 300 | 160 | 0 | 276 | .38 |
| D-19-01 05CBA | 78-03-24 | 9.2 | 37 | -- | 520 | 90 | 10 | 335 | .46 |
| D-19-01 07DBB | 78-03-24 | 11 | 53 | -- | 320 | 120 | 0 | 356 | .48 |
| D-19-01 08DAA | 78-09-11 | 4.3 | 52 | -- | 240 | 120 | 5 | 327 | .44 |
| D-19-01 19AAA | 78-03-24 | 8.4 | 38 | -- | 220 | 100 | 0 | 331 | .45 |
| ST. JOHNS | | | | | | | | | |
| A-12-28 19BAD | 78-05-11 | 2.5 | 11 | -- | 620 | 6400 | 50 | 2160 | 2.94 |
| A-13-27 13A | 78-05-11 | 2.1 | 14 | -- | 10 | 20 | 30 | 1200 | 1.63 |
| | 78-09-14 | 2.4 | 20 | -- | 1200 | 30 | -- | 1270 | 1.73 |
| A-14-27 35BDC | 78-09-14 | .2 | 9.7 | -- | 330 | 20 | 0 | 1260 | 1.71 |
| UPPER SAN PEDRO BASIN | | | | | | | | | |
| D-20-20 18DBC | 78-04-19 | .5 | 25 | -- | 40 | 60 | 30 | 369 | .50 |
| D-21-20 05ABD | 78-04-19 | .1 | 26 | -- | 10 | 70 | 10 | 193 | .26 |
| D-21-20 34DCC | 78-04-19 | .2 | 31 | -- | 10 | 50 | 0 | 223 | .30 |
| D-21-21 31BDC | 78-04-19 | .2 | 30 | -- | 20 | 30 | 0 | 207 | .28 |
| D-22-20 24AAA | 78-04-20 | .1 | 26 | -- | 7 | 50 | 0 | 220 | .30 |
| D-22-21 30AAA | 78-04-20 | .2 | 24 | -- | 7 | 50 | 0 | 230 | .31 |
| D-22-22 08C | 78-04-20 | 1.6 | 19 | -- | 260 | 40 | 0 | 253 | .34 |
| D-23-22 29DBD | 78-04-20 | .3 | 33 | -- | 20 | 50 | 0 | 216 | .29 |
| UPPER VERDE VALLEY | | | | | | | | | |
| A-11-06 10A UNSURV | 77-12-14 | 1.5 | 69 | -- | 9100 | 870 | 60 | 3180 | 4.32 |
| A-12-05 02C UNSURV | 77-12-13 | .2 | 75 | -- | 30 | 50 | 10 | 336 | .46 |
| A-12-05 10A UNSURV | 77-12-13 | .2 | 46 | -- | 40 | 40 | 40 | 600 | .82 |
| A-12-05 24B UNSURV | 77-12-13 | .4 | 48 | -- | 130 | 30 | 20 | 446 | .61 |
| A-12-06 01B UNSURV | 77-12-14 | .2 | 54 | -- | 20 | 40 | 30 | 360 | .49 |
| A-12-06 11D UNSURV | 77-12-14 | .3 | 82 | -- | 20 | 40 | 120 | 311 | .42 |
| A-12-07 14D UNSURV | 78-05-24 | .1 | 13 | -- | 60 | 20 | 0 | 437 | .59 |
| A-12-07 21D UNSURV | 78-05-24 | .2 | 75 | -- | 10 | 290 | 680 | 402 | .55 |
| A-12-07 22C UNSURV | 78-05-24 | .1 | 50 | -- | 10 | 20 | 0 | 326 | .44 |
| A-13-05 12CCA | 77-11-21 | .5 | 37 | 62 | 0 | 50 | 8 | 1020 | 1.39 |
| A-13-05 17CAA | 77-11-21 | .3 | 36 | 30 | 1 | 40 | 8 | 2000 | 2.72 |
| A-13-05 18CBB | 77-12-13 | .3 | 39 | -- | 40 | 20 | 10 | 437 | .59 |
| A-13-06 29DBB | 78-02-15 | .2 | 40 | 14 | 60 | 20 | 20 | 271 | .37 |
| A-14-02H24ADD | 78-04-20 | .3 | 28 | -- | 20 | 0 | 0 | 325 | .44 |
| A-14-03 04AAA | 78-04-18 | .2 | 31 | -- | 30 | 20 | 0 | -- | -- |
| A-14-03 17DDD1 | 78-03-16 | .3 | 35 | -- | 410 | 20 | 40 | 464 | .63 |
| A-14-03 21BAD | 78-03-16 | .3 | 24 | 0 | 40 | 30 | 50 | 390 | .53 |
| A-14-05 02BAB1 | 78-01-24 | .5 | 26 | 49 | 420 | 30 | 0 | 395 | .54 |
| A-14-05 02CAC | 78-02-09 | .4 | 25 | 20 | 380 | 30 | 20 | 391 | .53 |
| A-14-05 04AAA | 78-03-23 | .2 | 23 | 10 | 140 | 10 | 10 | 283 | .38 |
| A-15-02 02D UNSURV | 78-04-20 | .1 | 31 | 6 | 20 | 10 | 0 | 276 | .38 |
| A-15-03 05BAA | 78-02-24 | -- | -- | 15 | -- | 10 | 10 | -- | -- |
| | 78-04-04 | .1 | 24 | 13 | 20 | 0 | 0 | 379 | .52 |
| A-15-03 11DAD | 78-04-05 | .5 | 74 | 6 | 200 | 30 | 10 | 506 | .69 |
| A-15-03 13CDA | 77-12-20 | .4 | 67 | 12 | 100 | 10 | 0 | 327 | .44 |
| A-15-03 15CCD | 78-03-23 | .5 | 60 | 3 | 40 | 10 | 10 | 361 | .49 |
| A-15-03 20BAB | 78-04-05 | .1 | 33 | 3 | 20 | 10 | 0 | 345 | .47 |
| A-15-03 23BDD | 78-03-23 | .5 | 57 | 4 | 50 | 0 | 0 | 277 | .38 |
| A-15-05 20ABB | 78-03-23 | .3 | 60 | 18 | 150 | 0 | 0 | 385 | .52 |
| A-15-05 24DCA | 78-03-23 | .3 | 35 | 2 | 170 | 10 | 0 | 417 | .57 |
| A-15-05 35ACD | 78-04-19 | .3 | 22 | 130 | 500 | 20 | 0 | 430 | .58 |
| A-15-05 36CCB1 | 78-02-02 | .4 | 24 | 36 | 420 | 20 | 0 | 414 | .56 |
| A-15-05 36CCC | 78-02-02 | .5 | 20 | 1 | 350 | 10 | 60 | 384 | .52 |
| A-15-05 36DBB | 78-01-24 | .3 | 25 | 10 | 580 | 30 | 0 | 462 | .63 |
| A-15-06 29CAA | 78-04-20 | .6 | 12 | 35 | 470 | 50 | 0 | 340 | .46 |
| A-15-06 35CAC | 78-05-03 | .1 | 20 | -- | 10 | 10 | 0 | 195 | .27 |
| A-16-02 12CAD2 | 78-02-08 | .1 | 22 | 7 | 150 | 20 | 0 | 396 | .54 |
| A-16-03 17DBC | 78-02-08 | .1 | 16 | 8 | 50 | 10 | 10 | 291 | .40 |
| A-16-03 21BBB | 78-02-09 | .2 | 21 | 14 | 150 | 10 | 0 | 297 | .40 |
| A-16-03 31DDC1 | 77-12-20 | .2 | 22 | 4 | 40 | 10 | 20 | 383 | .52 |
| A-16-03 33DCD | 78-02-24 | -- | -- | 13 | -- | 30 | 10 | -- | -- |
| A-16-03 33DDD | 78-02-24 | -- | -- | 14 | -- | 10 | 0 | -- | -- |
| A-17-04 15CDC | 78-04-03 | .1 | 15 | 3 | 40 | 10 | 10 | 506 | .69 |
| A-18-07 15CCC2 | 77-10-31 | .1 | 18 | 3 | 9 | 20 | 8 | 151 | .21 |
| A-20-07 28BCC | 78-04-18 | .1 | 14 | 6 | 9 | 20 | 0 | 211 | .29 |
| A-20-07 30BBB | 78-04-12 | .1 | 12 | 3 | 6 | 10 | 0 | 217 | .30 |
| A-20-08 19ABA | 77-11-17 | .1 | 8.2 | 5 | 10 | 10 | 4 | 156 | .21 |
| YUMA | | | | | | | | | |
| C-10-24 16BAA2 | 78-02-07 | .5 | 19 | -- | -- | -- | -- | 688 | -- |

CHANGES IN SELECTED WATER-QUALITY PARAMETERS

ALPHABETIC LISTING

| PARM. CODE | NEW TERMINOLOGY -- FIRST LINE<br>OLD TERMINOLOGY -- SECOND LINE |
|---|---|
| 39332 | ALDRIN, SUSPENDED TOTAL (UG/L) |
| 39332 | ALDRIN, SUSPENDED (UG/L) |
| 01505 | ALPHA, SUSPENDED TOTAL (PCI/L) |
| 01505 | ALPHA, SUSPENDED (PCI/L) |
| 01506 | ALPHA, SUSPENDED TOTAL, COUNTING ERROR (PCI/L) |
| 01506 | ALPHA, SUSPENDED, COUNTING ERROR (PCI/L) |
| 01105 | ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL) |
| 01105 | ALUMINUM, TOTAL (UG/L AS AL) |
| 01107 | ALUMINUM, SUSPENDED RECOVERABLE (UG/L AS AL) |
| 01107 | ALUMINUM, SUSPENDED (UG/L AS AL) |
| 01108 | ALUMINUM, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS AL) |
| 01108 | ALUMINUM, TOTAL IN BOTTOM MATERIAL (UG/G AS AL) |
| 01096 | ANTIMONY, SUSPENDED TOTAL (UG/L AS SB) |
| 01096 | ANTIMONY, SUSPENDED (UG/L AS SB) |
| 39502 | AROCLOR, SUSPENDED TOTAL, 1248 PCB SERIES (UG/L) |
| 39502 | AROCLOR, SUSPENDED, 1248 PCB SERIES (UG/L) |
| 39506 | AROCLOR, SUSPENDED TOTAL, 1254 PCB SERIES (UG/L) |
| 39506 | AROCLOR, SUSPENDED, 1254 PCB SERIES (UG/L) |
| 39510 | AROCLOR, SUSPENDED TOTAL, 1260 PCB SERIES (UG/L) |
| 39510 | AROCLOR, SUSPENDED, 1260 PCB SERIES (UG/L) |
| 01001 | ARSENIC, SUSPENDED TOTAL (UG/L AS AS) |
| 01001 | ARSENIC, SUSPENDED (UG/L AS AS) |
| 01006 | BARIUM, SUSPENDED RECOVERABLE (UG/L AS BA) |
| 01006 | BARIUM, SUSPENDED (UG/L AS BA) |
| 01007 | BARIUM, TOTAL RECOVERABLE (UG/L AS BA) |
| 01007 | BARIUM, TOTAL (UG/L AS BA) |
| 01008 | BARIUM, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS BA) |
| 01008 | BARIUM, TOTAL IN BOTTOM MATERIAL (UG/G AS BA) |
| 01011 | BERYLLIUM, SUSPENDED RECOVERABLE (UG/L AS BE) |
| 01011 | BERYLLIUM, SUSPENDED (UG/L AS BE) |
| 01012 | BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE) |
| 01012 | BERYLLIUM, TOTAL (UG/L AS BE) |
| 01013 | BERYLLIUM, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS BE) |
| 01013 | BERYLLIUM, TOTAL IN BOTTOM MATERIAL (UG/G AS BE) |
| 03505 | BETA, SUSPENDED TOTAL (PCI/L) |
| 03505 | BETA, SUSPENDED (PCI/L) |
| 03506 | BETA, SUSPENDED TOTAL, COUNTING ERROR (PCI/L) |
| 03506 | BETA, SUSPENDED, COUNTING ERROR (PCI/L) |
| 01016 | BISMUTH, SUSPENDED TOTAL (UG/L AS BI) |
| 01016 | BISMUTH, SUSPENDED (UG/L AS BI) |
| 01021 | BORON, SUSPENDED RECOVERABLE (UG/L AS B) |
| 01021 | BORON, SUSPENDED (UG/L AS B) |
| 01022 | BORON, TOTAL RECOVERABLE (UG/L AS B) |
| 01022 | BORON, TOTAL (UG/L AS B) |
| 01023 | BORON, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS B) |
| 01023 | BORON, TOTAL IN BOTTOM MATERIAL (UG/G AS B) |
| 01026 | CADMIUM, SUSPENDED RECOVERABLE (UG/L AS CD) |
| 01026 | CADMIUM, SUSPENDED (UG/L AS CD) |
| 01027 | CADMIUM, TOTAL RECOVERABLE (UG/L AS CD) |
| 01027 | CADMIUM, TOTAL (UG/L AS CD) |
| 01028 | CADMIUM, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS CD) |
| 01028 | CADMIUM, TOTAL IN BOTTOM MATERIAL (UG/G AS CD) |
| 00916 | CALCIUM, TOTAL RECOVERABLE (MG/L AS CA) |
| 00916 | CALCIUM, TOTAL (MG/L AS CA) |
| 07052 | CALCIUM 45, SUSPENDED TOTAL (PCI/L) |
| 07052 | CALCIUM 45, SUSPENDED (PCI/L) |

CHANGES IN SELECTED WATER-QUALITY PARAMETERS--Continued

| PARM. CODE | NEW TERMINOLOGY -- FIRST LINE<br>OLD TERMINOLOGY -- SECOND LINE |
|---|---|
| 07053 | CALCIUM 45, SUSPENDED TOTAL, COUNTING ERROR (PCI/L) |
| 07053 | CALCIUM 45, SUSPENDED, COUNTING ERROR (PCI/L) |
| 00683 | CARBON, ORGANIC, SUSPENDED TOTAL (MG/L AS C) |
| 00683 | CARBON, ORGANIC, SUSPENDED (MG/L AS C) |
| 00688 | CARBON, INORGANIC, SUSPENDED TOTAL (MG/L AS C) |
| 00688 | CARBON, INORGANIC, SUSPENDED (MG/L AS C) |
| 00689 | CARBON, ORGANIC, SUSPENDED TOTAL (MG/L AS C) |
| 00689 | CARBON, ORGANIC, SUSPENDED (MG/L AS C) |
| 00694 | CARBON, INORGANIC PLUS ORGANIC, SUSPENDED TOTAL (MG/L AS C) |
| 00694 | CARBON, INORGANIC PLUS ORGANIC, SUSPENDED (MG/L AS C) |
| 01116 | CESIUM, SUSPENDED TOTAL (UG/L AS CS) |
| 01116 | CESIUM, SUSPENDED (UG/L AS CS) |
| 28404 | CESIUM 137, SUSPENDED TOTAL (PCI/L) |
| 28404 | CESIUM 137, SUSPENDED (PCI/L) |
| 28405 | CESIUM 137,SUSPENDED TOTAL, COUNTING ERROR (PCI/L) |
| 28405 | CESIUM 137,SUSPENDED, COUNTING ERROR (PCI/L) |
| 28412 | CESIUM 134, SUSPENDED TOTAL (PCI/L) |
| 28412 | CESIUM 134, SUSPENDED (PCI/L) |
| 28413 | CESIUM 134, SUSPENDED TOTAL, COUNTING ERROR (PCI/L) |
| 28413 | CESIUM 134, SUSPENDED, COUNTING ERROR (PCI/L) |
| 39353 | CHLORDANE, SUSPENDED TOTAL (UG/L) |
| 39353 | CHLORDANE, SUSPENDED (UG/L) |
| 01029 | CHROMIUM, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS CR) |
| 01029 | CHROMIUM, TOTAL IN BOTTOM MATERIAL (UG/G AS CR) |
| 01031 | CHROMIUM, SUSPENDED RECOVERABLE (UG/L AS CR) |
| 01031 | CHROMIUM, SUSPENDED (UG/L AS CR) |
| 01034 | CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) |
| 01034 | CHROMIUM, TOTAL (UG/L AS CR) |
| 01036 | COBALT, SUSPENDED RECOVERABLE (UG/L AS CO) |
| 01036 | COBALT, SUSPENDED (UG/L AS CO) |
| 01037 | COBALT, TOTAL RECOVERABLE (UG/L AS CO) |
| 01037 | COBALT, TOTAL (UG/L AS CO) |
| 01038 | COBALT, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS CO) |
| 01038 | COBALT, TOTAL IN BOTTOM MATERIAL (UG/G AS CO) |
| 01041 | COPPER, SUSPENDED RECOVERABLE (UG/L AS CU) |
| 01041 | COPPER, SUSPENDED (UG/L AS CU) |
| 01042 | COPPER, TOTAL RECOVERABLE (UG/L AS CU) |
| 01042 | COPPER, TOTAL (UG/L AS CU) |
| 01043 | COPPER, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS CU) |
| 01043 | COPPER, TOTAL IN BOTTOM MATERIAL (UG/G AS CU) |
| 39362 | DDD, SUSPENDED TOTAL (UG/L) |
| 39362 | DDD, SUSPENDED (UG/L) |
| 39367 | DDE, SUSPENDED TOTAL (UG/L) |
| 39367 | DDE, SUSPENDED (UG/L) |
| 39372 | DDT, SUSPENDED TOTAL (UG/L) |
| 39372 | DDT, SUSPENDED (UG/L) |
| 39573 | DIAZINON, SUSPENDED TOTAL (UG/L) |
| 39573 | DIAZINON, SUSPENDED (UG/L) |
| 39382 | DIELDRIN, SUSPENDED TOTAL (UG/L) |
| 39382 | DIELDRIN, SUSPENDED (UG/L) |
| 39392 | ENDRIN, SUSPENDED TOTAL (UG/L) |
| 39392 | ENDRIN, SUSPENDED (UG/L) |
| 01121 | GALLIUM, SUSPENDED TOTAL (UG/L AS GA) |
| 01121 | GALLIUM, SUSPENDED (UG/L AS GA) |
| 01126 | GERMANIUM, SUSPENDED TOTAL (UG/L AS GE) |
| 01126 | GERMANIUM, SUSPENDED (UG/L AS GE) |

CHANGES IN SELECTED WATER-QUALITY PARAMETERS--Continued

| PARM. CODE | NEW TERMINOLOGY -- FIRST LINE<br>OLD TERMINOLOGY -- SECOND LINE |
|---|---|
| 01516 | GROSS ALPHA RADIOACTIVITY, SUSPENDED TOTAL (PCI/L AS U NATURAL) |
| 01516 | GROSS ALPHA RADIOACTIVITY, SUSPENDED (PCI/L AS U NATURAL) |
| 01517 | GROSS ALPHA RADIOACTIVITY, SUSPENDED TOTAL (PCI/G AS U NATURAL) |
| 01517 | GROSS ALPHA RADIOACTIVITY, SUSPENDED (PCI/G AS U NATURAL) |
| 01518 | GROSS ALPHA RADIOACTIVITY, SUSPENDED TOTAL (UG/G AS U NATURAL) |
| 01518 | GROSS ALPHA RADIOACTIVITY, SUSPENDED (UG/G AS U NATURAL) |
| 80040 | GROSS ALPHA RADIOACTIVITY, SUSPENDED TOTAL (UG/L AS U NATURAL) |
| 80040 | GROSS ALPHA RADIOACTIVITY, SUSPENDED (UG/L AS U NATURAL) |
| 80060 | GROSS BETA RADIOACTIVITY, SUSPENDED TOTAL (PCI/L AS SR/YT-90) |
| 80060 | GROSS BETA RADIOACTIVITY, SUSPENDED (PCI/L AS SR/YT-90) |
| 03516 | GROSS BETA RADIOACTIVITY, SUSPENDED TOTAL (PCI/L AS CS-137) |
| 03516 | GROSS BETA RADIOACTIVITY, SUSPENDED (PCI/L AS CS-137) |
| 03517 | GROSS BETA RADIOACTIVITY, SUSPENDED TOTAL (PCI/G AS SR/YT-90) |
| 03517 | GROSS BETA RADIOACTIVITY, SUSPENDED (PCI/G AS SR/YT-90) |
| 03518 | GROSS BETA RADIOACTIVITY, SUSPENDED TOTAL (PCI/G AS CS-137) |
| 03518 | GROSS BETA RADIOACTIVITY, SUSPENDED (PCI/G AS CS-137) |
| 39412 | HEPTACHLOR, SUSPENDED TOTAL (UG/L) |
| 39412 | HEPTACHLOR, SUSPENDED (UG/L) |
| 39422 | HEPTACHLOR EPOXIDE, SUSPENDED TOTAL (UG/L) |
| 39422 | HEPTACHLOR EPOXIDE, SUSPENDED (UG/L) |
| 01044 | IRON, SUSPENDED RECOVERABLE (UG/L AS FE) |
| 01044 | IRON, SUSPENDED (UG/L AS FE) |
| 01045 | IRON, TOTAL RECOVERABLE (UG/L AS FE) |
| 01045 | IRON, TOTAL (UG/L AS FE) |
| 01170 | IRON, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS FE) |
| 01170 | IRON, TOTAL IN BOTTOM MATERIAL (UG/G AS FE) |
| 07062 | IRON 59, SUSPENDED TOTAL (PCI/L) |
| 07062 | IRON 59, SUSPENDED (PCI/L) |
| 07063 | IRON 59, SUSPENDED TOTAL, COUNTING ERROR (PCI/L) |
| 07063 | IRON 59, SUSPENDED, COUNTING ERROR (PCI/L) |
| 39432 | ISODRIN, SUSPENDED TOTAL (UG/L) |
| 39432 | ISODRIN, SUSPENDED (UG/L) |
| 01050 | LEAD, SUSPENDED RECOVERABLE (UG/L AS PB) |
| 01050 | LEAD, SUSPENDED (UG/L AS PB) |
| 01051 | LEAD, TOTAL RECOVERABLE (UG/L AS PB) |
| 01051 | LEAD, TOTAL (UG/L AS PB) |
| 01052 | LEAD, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS PB) |
| 01052 | LEAD, TOTAL IN BOTTOM MATERIAL (UG/G AS PB) |
| 39342 | LINDANE, SUSPENDED TOTAL (UG/L) |
| 39342 | LINDANE, SUSPENDED (UG/L) |
| 01131 | LITHIUM, SUSPENDED RECOVERABLE (UG/L AS LI) |
| 01131 | LITHIUM, SUSPENDED (UG/L AS LI) |
| 01132 | LITHIUM, TOTAL RECOVERABLE (UG/L AS LI) |
| 01132 | LITHIUM, TOTAL (UG/L AS LI) |
| 00926 | MAGNESIUM, SUSPENDED RECOVERABLE (MG/L AS MG) |
| 00926 | MAGNESIUM, SUSPENDED (MG/L AS MG) |

CHANGES IN SELECTED WATER-QUALITY PARAMETERS--Continued

| PARM. CODE | NEW TERMINOLOGY -- FIRST LINE<br>OLD TERMINOLOGY -- SECOND LINE |
|---|---|
| 00927 | MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG) |
| 00927 | MAGNESIUM, TOTAL (MG/L AS MG) |
| 39533 | MALATHION, SUSPENDED TOTAL (UG/L) |
| 39533 | MALATHION, SUSPENDED (UG/L) |
| 01053 | MANGANESE, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS MN) |
| 01053 | MANGANESE, TOTAL IN BOTTOM MATERIAL (UG/G AS MN) |
| 01054 | MANGANESE, SUSPENDED RECOVERABLE (UG/L AS MN) |
| 01054 | MANGANESE, SUSPENDED (UG/L AS MN) |
| 01055 | MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) |
| 01055 | MANGANESE, TOTAL (UG/L AS MN) |
| 71895 | MERCURY, SUSPENDED RECOVERABLE (UG/L AS HG) |
| 71895 | MERCURY, SUSPENDED (UG/L AS HG) |
| 71900 | MERCURY, TOTAL RECOVERABLE (UG/L AS HG) |
| 71900 | MERCURY, TOTAL (UG/L AS HG) |
| 71921 | MERCURY, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS HG) |
| 71921 | MERCURY, TOTAL IN BOTTOM MATERIAL (UG/G AS HG) |
| 39603 | METHYL PARATHION, SUSPENDED TOTAL (UG/L) |
| 39603 | METHYL PARATHION, SUSPENDED (UG/L) |
| 39757 | MIREX, SUSPENDED TOTAL (UG/L) |
| 39757 | MIREX, SUSPENDED (UG/L) |
| 01061 | MOLYBDENUM, SUSPENDED RECOVERABLE (UG/L AS MO) |
| 01061 | MOLYBDENUM, SUSPENDED (UG/L AS MO) |
| 01062 | MOLYBDENUM, TOTAL RECOVERABLE (UG/L AS MO) |
| 01062 | MOLYBDENUM, TOTAL (UG/L AS MO) |
| 01063 | MOLYBDENUM, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS MO) |
| 01063 | MOLYBDENUM, TOTAL IN BOTTOM MATERIAL (UG/G AS MO) |
| 01066 | NICKEL, SUSPENDED RECOVERABLE (UG/L AS NI) |
| 01066 | NICKEL, SUSPENDED (UG/L AS NI) |
| 01067 | NICKEL, TOTAL RECOVERABLE (UG/L AS NI) |
| 01067 | NICKEL, TOTAL (UG/L AS NI) |
| 01068 | NICKEL, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS NI) |
| 01068 | NICKEL, TOTAL IN BOTTOM MATERIAL (UG/G AS NI) |
| 00623 | NITROGEN, AMMONIA PLUS ORGANIC, DISSOLVED (MG/L AS N) |
| 00623 | NITROGEN, KJELDAHL, DISSOLVED (MG/L AS N) |
| 00624 | NITROGEN, AMMONIA PLUS ORGANIC, SUSPENDED TOTAL (MG/L AS N) |
| 00624 | NITROGEN, KJELDAHL, SUSPENDED (MG/L AS N) |
| 00625 | NITROGEN, AMMONIA PLUS ORGANIC, TOTAL (MG/L AS N) |
| 00625 | NITROGEN, KJELDAHL, TOTAL (MG/L AS N) |
| 00626 | NITROGEN, AMMONIA PLUS ORGANIC,<br>TOTAL IN BOTTOM MATERIAL, DRY WT (MG/KG AS N) |
| 00626 | NITROGEN, KJELDAHL, TOTAL IN BOTTOM MATERIAL, DRY WT (MG/KG AS N) |
| 39543 | PARATHION, SUSPENDED TOTAL (UG/L) |
| 39543 | PARATHION, SUSPENDED (UG/L) |
| 39518 | PCB, SUSPENDED TOTAL (UG/L) |
| 39518 | PCB, SUSPENDED (UG/L) |
| 09505 | RADIUM 226, SUSPENDED TOTAL (PCI/L) |
| 09505 | RADIUM 226, SUSPENDED (PCI/L) |
| 07082 | RHODAMINE WT, SUSPENDED TOTAL (UG/L) |
| 07082 | RHODAMINE WT, SUSPENDED (UG/L) |
| 01136 | RUBIDIUM, SUSPENDED TOTAL (UG/L AS RB) |
| 01136 | RUBIDIUM, SUSPENDED (UG/L AS RB) |
| 29633 | SCANDIUM 46, SUSPENDED TOTAL (PCI/L) |
| 29633 | SCANDIUM 46, SUSPENDED (PCI/L) |
| 29634 | SCANDIUM 46, SUSPENDED TOTAL, COUNTING ERROR (PCI/L) |
| 29634 | SCANDIUM 46, SUSPENDED, COUNTING ERROR (PCI/L) |
| 01146 | SELENIUM, SUSPENDED TOTAL (UG/L AS SE) |
| 01146 | SELENIUM, SUSPENDED (UG/L AS SE) |
| 07102 | SELENIUM 75, SUSPENDED TOTAL (PCI/L) |
| 07102 | SELENIUM 75, SUSPENDED (PCI/L) |

CHANGES IN SELECTED WATER-QUALITY PARAMETERS--Continued

| PARM. CODE | NEW TERMINOLOGY -- FIRST LINE<br>OLD TERMINOLOGY -- SECOND LINE |
|---|---|
| 07103 | SELENIUM 75, SUSPENDED TOTAL, COUNTING ERROR (PCI/L) |
| 07103 | SELENIUM 75, SUSPENDED, COUNTING ERROR (PCI/L) |
| 01076 | SILVER, SUSPENDED RECOVERABLE (UG/L AS AG) |
| 01076 | SILVER, SUSPENDED (UG/L AS AG) |
| 01077 | SILVER, TOTAL RECOVERABLE (UG/L AS AG) |
| 01077 | SILVER, TOTAL (UG/L AS AG) |
| 01078 | SILVER, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS AG) |
| 01078 | SILVER, TOTAL IN BOTTOM MATERIAL (UG/G AS AG) |
| 07122 | SILVER 110, SUSPENDED TOTAL (PCI/L) |
| 07122 | SILVER 110, SUSPENDED (PCI/L) |
| 07123 | SILVER 110, SUSPENDED TOTAL, COUNTING ERROR (PCI/L) |
| 07123 | SILVER 110, SUSPENDED, COUNTING ERROR (PCI/L) |
| 39763 | SILVEX, SUSPENDED TOTAL (UG/L) |
| 39763 | SILVEX, SUSPENDED (UG/L) |
| 70299 | SOLIDS, RESIDUE AT 110 DEG. C, SUSPENDED TOTAL (MG/L) |
| 70299 | SOLIDS, RESIDUE AT 110 DEG. C, SUSPENDED (MG/L) |
| 01081 | STRONTIUM, SUSPENDED RECOVERABLE (UG/L AS SR) |
| 01081 | STRONTIUM, SUSPENDED (UG/L AS SR) |
| 01082 | STRONTIUM, TOTAL RECOVERABLE (UG/L AS SR) |
| 01082 | STRONTIUM, TOTAL (UG/L AS SR) |
| 01083 | STRONTIUM, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS SR) |
| 01083 | STRONTIUM, TOTAL IN BOTTOM MATERIAL (UG/G AS SR) |
| 13505 | STRONTIUM 90, SUSPENDED TOTAL (PCI/L) |
| 13505 | STRONTIUM 90, SUSPENDED (PCI/L) |
| 13506 | STRONTIUM 90, SUSPENDED TOTAL, COUNTING ERROR (PCI/L) |
| 13506 | STRONTIUM 90, SUSPENDED, COUNTING ERROR (PCI/L) |
| 07142 | SULFUR 35, SUSPENDED TOTAL (PCI/L) |
| 07142 | SULFUR 35, SUSPENDED (PCI/L) |
| 07143 | SULFUR 35, SUSPENDED TOTAL, COUNTING ERROR (PCI/L) |
| 07143 | SULFUR 35, SUSPENDED, COUNTING ERROR (PCI/L) |
| 01101 | TIN, SUSPENDED RECOVERABLE (UG/L AS SN) |
| 01101 | TIN, SUSPENDED (UG/L AS SN) |
| 01102 | TIN, TOTAL RECOVERABLE (UG/L AS SN) |
| 01102 | TIN, TOTAL (UG/L AS SN) |
| 01151 | TITANIUM, SUSPENDED TOTAL (UG/L AS TI) |
| 01151 | TITANIUM, SUSPENDED (UG/L AS TI) |
| 39402 | TOXAPHENE, SUSPENDED TOTAL (UG/L) |
| 39402 | TOXAPHENE, SUSPENDED (UG/L) |
| 07010 | TRITIUM, SUSPENDED TOTAL (PCI/L) |
| 07010 | TRITIUM, SUSPENDED (PCI/L) |
| 07011 | TRITIUM, SUSPENDED TOTAL, COUNTING ERROR (PCI/L) |
| 07011 | TRITIUM, SUSPENDED, COUNTING ERROR (PCI/L) |
| 07014 | TRITIUM, SUSPENDED TOTAL, COUNTING ERROR (TRITIUM UNITS) |
| 07014 | TRITIUM, SUSPENDED, COUNTING ERROR (TRITIUM UNITS) |
| 07016 | TRITIUM, SUSPENDED TOTAL (TRITIUM UNITS) |
| 07016 | TRITIUM, SUSPENDED (TRITIUM UNITS) |
| 22705 | URANIUM, NATURAL, SUSPENDED TOTAL (UG/L AS U NATURAL) |
| 22705 | URANIUM, NATURAL, SUSPENDED (UG/L AS U NATURAL) |
| 01086 | VANADIUM, SUSPENDED TOTAL (UG/L AS V) |
| 01086 | VANADIUM, SUSPENDED (UG/L AS V) |
| 01091 | ZINC, SUSPENDED RECOVERABLE (UG/L AS ZN) |
| 01091 | ZINC, SUSPENDED (UG/L AS ZN) |
| 01092 | ZINC, TOTAL RECOVERABLE (UG/L AS ZN) |
| 01092 | ZINC, TOTAL (UG/L AS ZN) |
| 01093 | ZINC, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS ZN) |
| 01093 | ZINC, TOTAL IN BOTTOM MATERIAL (UG/G AS ZN) |
| 01161 | ZIRCONIUM, SUSPENDED TOTAL (UG/L AS ZR) |
| 01161 | ZIRCONIUM, SUSPENDED (UG/L AS ZR) |
| 39733 | 2,4-D, SUSPENDED TOTAL (UG/L) |
| 39733 | 2,4-D, SUSPENDED (UG/L) |
| 39743 | 2,4,5-T, SUSPENDED TOTAL (UG/L) |
| 39743 | 2,4,5-T, SUSPENDED (UG/L) |

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GPO 689-143

# FACTORS FOR CONVERTING INCH-POUND UNITS TO INTERNATIONAL SYSTEM UNITS (SI)

The following factors may be used to convert the inch-pound units published herein to the International System of Units (SI). This report contains both the inch-pound and SI unit equivalents in the station manuscript descriptions.

| Multiply inch-pound units | By | To obtain SI units |
|---|---|---|
| | *Length* | |
| inches (in) | $2.54 \times 10^{1}$ | millimeters (mm) |
| | $2.54 \times 10^{-2}$ | meters (m) |
| feet (ft) | $3.048 \times 10^{-1}$ | meters (m) |
| miles (mi) | $1.609 \times 10^{0}$ | kilometers (km) |
| | *Area* | |
| acres | $4.047 \times 10^{3}$ | square meters ($m^2$) |
| | $4.047 \times 10^{-1}$ | square hectometers ($hm^2$) |
| | $4.047 \times 10^{-3}$ | square kilometers ($km^2$) |
| square miles ($mi^2$) | $2.590 \times 10^{0}$ | square kilometers ($km^2$) |
| | *Volume* | |
| gallons (gal) | $3.785 \times 10^{0}$ | liters (L) |
| | $3.785 \times 10^{0}$ | cubic decimeters ($dm^3$) |
| | $3.785 \times 10^{-3}$ | cubic meters ($m^3$) |
| million gallons | $3.785 \times 10^{3}$ | cubic meters ($m^3$) |
| | $3.785 \times 10^{-3}$ | cubic hectometers ($hm^3$) |
| cubic feet ($ft^3$) | $2.832 \times 10^{1}$ | cubic decimeters ($dm^3$) |
| | $2.832 \times 10^{-2}$ | cubic meters ($m^3$) |
| cfs-days | $2.447 \times 10^{3}$ | cubic meters ($m^3$) |
| | $2.447 \times 10^{-3}$ | cubic hectometers ($hm^3$) |
| acre-feet (acre-ft) | $1.233 \times 10^{3}$ | cubic meters ($m^3$) |
| | $1.233 \times 10^{-3}$ | cubic hectometers ($hm^3$) |
| | $1.233 \times 10^{-6}$ | cubic kilometers ($km^3$) |
| | *Flow* | |
| cubic feet per second ($ft^3/s$) | $2.832 \times 10^{1}$ | liters per second (L/s) |
| | $2.832 \times 10^{1}$ | cubic decimeters per second ($dm^3/s$) |
| | $2.832 \times 10^{-2}$ | cubic meters per second ($m^3/s$) |
| gallons per minute (gal/min) | $6.309 \times 10^{-2}$ | liters per second (L/s) |
| | $6.309 \times 10^{-2}$ | cubic decimeters per second ($dm^3/s$) |
| | $6.309 \times 10^{-5}$ | cubic meters per second ($m^3/s$) |
| million gallons per day | $4.381 \times 10^{1}$ | cubic decimeters per second ($dm^3/s$) |
| | $4.381 \times 10^{-2}$ | cubic meters per second ($m^3/s$) |
| | *Mass* | |
| tons (short) | $9.072 \times 10^{-1}$ | megagrams (Mg) or metric tons |

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